*June-July 1971*

# EMO

*Civil Defense - Moscow*

*Regina EMO Response to Flood*

*Decision Information Distribution System*

CANADA EMERGENCY MEASURES ORGANIZATION

# EMO
# NATIONAL DIGEST

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*Editor:* A. M. STIRTON

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# CIVIL DEFENSE - MOSCOW 1969

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## Preface

### Why We Have Translated the Soviet Civil Defense Handbook

The USSR has a way of working inconspicuously on important projects. The news of Sputnik, for instance, practically exploded in our journals, destroying myths and preconceptions we had unconsciously harbored since 1944. Similarly, Soviet civil defense preparations have received little publicity in our media. Unfortunately, perhaps, the publication of their 1969 civil defense handbook is far from the colorful launching of a Sputnik, but the careful planning evidenced by it may have as much intrinsic importance as that which culminated in the Sputnik launching.

This handbook and other Russian publications on civil defense have been carefully studied by the Oak Ridge Civil Defense Research Project. Their practicality and completeness are impressive—especially their plans for the evacuation and dispersal of the urban population into the rural areas. For these reasons, and since no comparable handbook has been published by our own government, we believe that its English translation will be valuable and interesting to the American public and that knowledge of the extend and character of the Russian civil defense preparations will be important to our leadership.

### Why This Particular Handbook

We have chosen this handbook first and foremost because of its thoroughgoing nature. While it is not difficult to find numerous Russian articles on the Soviet civil defense program—Soviet newspapers, periodicals, and broadcasts contain an abundance of information on this subject—this handbook is unusual in that it presents the Soviet civil defense program in its entirety under one cover: its reason for existence, its organization, its aims and goals, and its means and methods of implementation, even down to such minute details as to what to wear beneath protective clothing under various temperature conditions, how to convert a tractor-mounted farm sprayer into a decontaminating machine, and how to administer artificial respiration "when injuries to the ribs or upper limbs make all [the ordinary] methods of artificial respiration impossible".

Above all, it is a comprehensive and detailed account of the Soviet civil defense program from the Soviet point of view, thereby affording the reader firsthand knowledge of where Soviet emphasis lies and allowing him to draw his own conclusions.

A further reason for selecting this particular handbook is its high endorsement by Soviet authorities. It is described by F. Popenko, a Soviet reviewer for the military journal, Voyennyye Znaniya, for example, as "the most thorough work among the books on civil defense published this year [1969.]" (See page 00). According to Popenko, "The need for this publication had long been ripe."

Intended as a textbook for agricultural VUZ (higher educational institutes), this handbook is the product of editor-in-chief N. I. Akimov and four other editors, with certain technical sections of chapters written by additional specialists. The Russian text consists of 351 pages, and 130,000 copies have been printed, priced at one ruble, one kopeck each (about $1.12 at the current official dollar-ruble exchange rate given in The 1970 World Almanac, p. 559).

Before studying this translation, the U. S. reader may well wonder, why read a handbook which addresses itself primarily to rural civil defense when U. S. civil defense emphasis has been almost exclusively urban? Moreover, since a little over half the Soviet population lives in cities, would not an urban civil defense handbook have greater relevance than a rural one even in Russia? The answer to this last question is *no*—not in the context of the Soviet civil defense program. It is essential to realize at the outset that the keystone of Soviet civil defense is the evacuation and dispersal of the overwhelming majority of the urban population to rural areas during periods of escalating crisis, with urban blast shelters provided primarily for on-shift workers in vital industries in target cities. Soviet rationale for moving people to the country is simple:

"The simultaneous dispersal of workers and evacuation of the plants and institutions will greatly decrease the number of people in the cities; this in turn will sharply reduce population losses in case of a nuclear attack by the enemy. . . . a nuclear attack of an unprotected large city may result in the loss of life of as much as 90% of the population. An early dispersal and evacuation could reduce the losses considerably, to a level between 5% and 8%".

Thus, because of the unexpected tremendous influx of people in the country, rural civil defense assumes a highly important role. Chapter 11 underscores this fact and goes on to indicate other reasons for the significance of rural civil defense as well:

(1) Agricultural regions provide human and material resources for civil defense and furnish manpower and materiel for rescue and emergency repair operations in stricken cities;

(2) In wartime, "not only . . . a large part of the dispersed workers, service personnel, and evacuated non-working population [would be transported to the country], but also the main material reserves";

(3) Rural communal buildings, hospitals, and other medical institutions would serve as the main base for treating the injured if the "big cities with their large populations [should] . . . serve as targets of a nuclear enemy attack";

(4) The rural regions would have a primary role in protecting people, animals, plants, food, water supplies, and fodder from contamination by radioactive and chemical substances and bacterial agents;

(5) Responsibility for assuring the output of agriculture during wartime and in the post war years would fall to the countryside.

## Context of the Present Soviet Civil Defense Program

Before we examine the Soviet civil defense program, a few basic considerations are instructive. First, the Soviets have consistently put their civil defense effort within the framework of the threat of imperial agression. This remains true today, the threat from Communist China and occasional allusions to it notwithstanding. (See Introduction and Chapter 1.)

Second, the civil defense program occupies an important position in the overall defense of the country. V. I. Chuykov, Chief of Soviet Civil Defense and a marshal of the Soviet Union, has admitted, "Civil defense alone is not capable of assuring the protection of the population and material resources." Such protection, he goes on to say, can be achieved only through the joint efforts of civil defense and the armed forces. But, he adds, neither is success in these areas possible without civil defense; in the event of nuclear attack, civil defense is vital to the "achievement of victory."

Third, it is important to remember that when Marshal Chuykov and other Soviets speak of the importance of civil defense, they do so from experience. There are many Russians living today who vividly remember enemy attack on their homeland during World War II. They have seen Red Square on fire and the Kremlin ablaze; they have participated in the evacuation of over 10,000,000 people and over 1300 basic industries from vulnerable areas to the interior.

Fourth, Soviet Civil Defense was given an authoritative boost at the Twenty-Third Congress, when the Central Committee of the Communist Party called for strengthening civil defense in 1966 and when the Soviet government strengthened this mandate by passing the Law on Universal Military Duty in 1967. Article 17 of this law calls for compulsory civil defense training in the grade schools, high schools, and technical schools throughout the Soviet Union. Implementation of the new law has taken place to the extent that today, by the time a Soviet school child completes the tenth grade, he has received a total of 115 hours of civil defense instruction. The publication of this 1969 handbook is a result of the continuing Party- and government-backed emphasis on civil defense.

Fifth, the entire Soviet civil defense program derives from the Soviet concept of modern warfare. Chapter 1 of this handbook explicitly describes World War III: "If the imperialists were successful in unleashing war, it would be an armed struggle among countries of two opposite world systems—capitalist and socialist. . . . Thus, it follows that [such a war] would be waged with the widespread use of weapons of mass destruction and, above all, nuclear weapons. Such a war would encompass an enormous area and involve whole continents. Not only troops, but also centers of vital industry, transport, energy production, and communications would be subject to devastating attack. . . . Distinctions between front and rear would disappear."

Cities would be targeted: ". . . one nuclear explosion is sufficient to destroy a large city with a population of millions and to contaminate an enormous area with radioactive materials." And "in agricultural regions people, animals, and plants would be affected by fallout, and food products, fodder, water sources, and other assets would be contaminated."

". . . many administrative, industrial, political, and military centers, ports, airfields, mining enterprises, and other important installations could be subjected to nuclear and chemical attack, and the surrounding territories contaminated with radioactive fallout, poisonous chemicals, and bacteriological agents."

It is from this view of war that the rationale of the Soviet civil defense effort proceeds: If cities would be targeted, remove the bulk of the urban population into the country, providing those who would remain behind with blast shelters; if contamination from fallout, poisonous chemicals, and bacterial agents would con-

stitute the main danger to people, animals, plants, food, water supplies, and fodder in the country, concentrate on providing protection (such as fallout shelters) from such contamination in rural areas. Moreover, confidence is expressed that civil defense will succeed. As Marshal Chykov has pointed out, "Although the weapons we have examined are called mass weapons, with the knowledge and skillful use of modern defense measures, they will not injure masses, but only those who neglect the study, mastery, and use of these measures."

The business of this handbook is to tell how Soviet civil defense is to be accomplished. Brief description of the subjects of the fifteen chapters follow in chronological order:

1. A general discussion of the Soviet civil defense program,
2. The administrative organization of the program to accomplish its mission,
3. Personal protective equipment (gas masks, protective clothing, etc.) for safeguarding the respiratory organs and the skin,
4. Shelters for protecting essential workers in cities and radiation-resistant dugouts (fallout shelters) for protecting rural inhabitants and urban evacuees in the country,
5. Plans for evacuating and dispersing urban dwellers from the cities and for receiving and relocating them in the country,
6. Instruments for detecting and measuring radiation, chemical substances, and bacterial agents,
7. Methods of assessing the effects of nuclear, chemical, and bacterial weapons on people, animals, food, plants, fodder, and sources of water,
8. Measures for protecting animals, food, plants, fodder, sources of water from these weapons effects,
9. Instructions on administering first aid in times of disaster,
10. Responses of the rural population on threat of attack and on the seven civil defense warning signals,
11. The required format and content of a civil defense plan (a written document) for a county or a collective or state farm,
12. The execution of the civil defense plan (setting the written plan in motion),
13. The rescue and emergency repair work of the civil defense brigades,
14. The use of ordinary farm, road, and construction equipment for decontamination and degassing, and
15. Instruction of the rural population in civil defense.

## Selected Comments on the Chapters

**Chapter 1, "Civil Defense in a Nuclear War."** The first chapter, as we have already noted, puts Soviet civil defense in the context of "imperialist aggression" and indicates the character of a future war. In addition, it presents the overview of the Soviet civil defense program.

Civil defense in the Soviet Union is a system of nationwide defense measures designed to:

1. Protect the population from nuclear, chemical, and bacteriological weapons,
2. Protect industrial installations and maintain production,
3. Protect agricultural resources, and
4. Undertake rescue and emergency repair operations in centers of mass destruction.

More specifically, protection of the population is achieved by:

1. Warning the population and the civil defense staffs of attack,
2. Providing personal protective equipment (gas masks, protective clothing) and radiation-resistant dugouts (almost all of which are hasty fallout shelters) for the rural population,
3. Adapting storage bins, cellars, silos, and other farm buildings as "cover" against fallout,
4. Providing "reliable shelters" for the urban population,
5. Evacuating and dispersing the urban population in the event of crisis,
6. Receiving and relocating the evacuees and dispersed people from the cities and providing them with food, shelter, other necessities, and work in the dispersal and evacuation areas,
7. Protecting food and water supplies and creating necessary reserves of food, water, and essential medical supplies,
8. Instructing the population in the available means of protection,
9. Training civil defense brigades to perform rescue and emergency repair operations in stricken cities,
10. Instructing the population in first aid, and
11. Maintaining a high level of morale (through political work of the Party).

**Chapter 2, "Organization of Civil Defense."** The second chapter explains that civil defense is organized throughout the Soviet Union on a territorial-industrial basis. It involves all branches of government as well as all industrial plants, schools, kolkhoz (collective farms), and sovkhozs (state farms), and the population at large. Party, government, administrative, and industrial leaders share the responsibility for the execution of the program.

The civil defense program is under the jurisdiction of the Council of Ministers (and directly under the Ministry of Defense) and is led by the Chief of Civil Defense of the USSR (Marshal V. I. Chuykov), who appoints his own staff.

At each territorial-administrative level, the chief administrator is the civil defense head. Thus, at each level —county, city, region—the chairmen of the executive committees of the Council of Workers' Deputies (comparable to U. S. principal county official, mayor, governor) are the civil defense chiefs and appoint their own staffs. Similarly, the heads of industrial plants, institutions, schools, sovkhozs, and kolkhozs are designated as civil defense chiefs in their organizations and also select their own staffs.

While Soviet civil defense is a unified, nationwide system with planning formulated at the national level, the individual economic unit—the county, plant, school, sovkhoz, kolkhoz, etc.—is responsible for the specifically localized planning and for the actual execution of the program. Each county, for example, organizes its own civil defense units in accordance with the available local services. Firefighting units are organized within the fire department with the county-fire chief acting as head, units for preserving public order are created in the county police department with the chief of police acting as head, and medical units are organized within the county-public health department with the principal county medical officer acting as head.

Also, the formations, which, according to Marshal Chuykov, comprise the "main force of civil defense," are created within each kolkhoz, sovkhoz, industrial plant, etc. These formations include rescue units, survey groups, observation groups for monitoring radioactivity, communications units, sanitary units, firefighting brigades, formations for the protection of animals, formations for the protection of plants, first aid units, etc.

**Chapter 3, "Personal Protective Equipment."** The third chapter discusses "personal" or "individual" means of protection, which are designed to protect the population from radioactive dust, poisonous chemicals, and infectious bacteria. Means of protecting respiratory organs include standard gas masks (plus 5 sizes for children), respirators, cloth dust masks, and cotton gauze masks, all described in considerable detail. Means of protecting the skin include special clothing, coveralls, raincoats, impregnated clothing, and improvised equipment, also described in detail.

Specific information is presented on the appearance, construction, and operating principle of the gas mask together with instructions on how to select a gas mask (according to face size), adjust it, check it for airtightness, and store it.

**Chapter 4, "Shelters for Protecting the Population."** The fourth chapter describes protective structures within the two broad categories of Soviet installations: (1) **shelters**, which are designed to protect against the prompt effects of nuclear weapons (blast, thermal radiation, and penetrating radiation), as well as against chemical substances and biological agents, and (2) **dugouts**, which are intended primarily to protect against heavy fallout and can be built by unskilled citizens dyring an escalating crisis. A review of Chapter 4 in the light of both earlier and later Soviet publications on protective structures, and also in the light of actual construction of Russian type dugouts in the Oak Ridge area, reveals several possible deficiencies, retrogressions, and inconsistencies in certain aspects of Soviet dugout design.

One possible deficiency is the size of the natural ventilation exhaust duct recommended by the Soviets for their dugouts. The size of the duct—10 x 10 cm (3.9 x 3.9 in.)—may not be large enough to maintain tolerable temperatures in warm weather unless forced ventilation is provided.

An apparent retrogression in the Soviet dugout design is the method for preventing water seepage. Both earlier and later Soviet instructions for waterproofing the roofs of hasty shelters call for first mounding some earth over the flat roof and covering it with waterproof materials in such a way that the waterproofed surface slopes aways from the ridge line. Some earlier instructions specify that about two more feet of earth are to be mounded over this "buried roof." This method of waterproofing, tested in the shelters built at the Oak Ridge National Laboratory in 1969 and 1970, produced a roof that did not leak. The Soviet method presented in this handbook of preventing water seepage by placing asphalt-coated roofing paper and other waterproof materials on a flat log roof, however, will not prevent seepage. Water will seep throught the earth covering and "puddle" on the flat waterproofing materials, eventually running between the sheets and then leaking into the shelter.

The design for recent Soviet pole-type dugouts calls for roofs that are considerably less blast resistant than earlier models. However, since Soviet dugouts are currently designed primarily to provide fallout protection in rural areas, remote from possible urban targets, a blast resistant roof may not be deemed necessary.

Indicative of inconsistencies in certain shelter design features are the new ventilation requirements for warm areas. This present handbook stipulates an air supply of 1.2 cu ft per minute per person. According to a more recent Soviet publication (F. Ostroukh, "With Sim-

plified Ventilation Equipment," Voyennyye Znaniya, February 1970,), however, ventilation flow rates "in southern regions" should range from 4.1 cu ft per minute per person in the coolest southern region to 15 cu ft per minute per person in the warmest region. These values appear much more realistic to the editors.

**Chapter 5, "Reception and Relocation of Dispersed Operational and Supervisory Personnel and Evacuated People."** The fifth chapter deals with the evacuation and dispersal of people from the city and their reception and relocation in the country. A special governmental decree sets the process in motion. Chapter 5 is a representative chapter of the book both in spirit and in format for the following reasons:

(1) There is an explicit definition of terms: "Dispersal" . . . covers operational and supervisory personnel (and members of their families) of plants which continue their operation in large cities during the war. They are to be relocated in an outlying area from which they may commute to work in shifts. They will spend their leisure time outside the city. "Outlying area" is, in turn, defined on the same page as "the territory which lies between the outer boundary of the potential destruction of the city and the boundary of an administrative subdivision, such as county, district, or republic". It is further spelled out that "the dispersed employees should be resettled near railway stations and highways to reduce the [commuting] time," that "the time needed for the round trip should not exceed 4 to 5 hours," that "the dispersal areas may [therefore] be 60 to 80 kilometers [37 to 50 miles] or more from the city," and that "under such conditions the dispersed employees will be at work for 12 hours"—that is, there would be but two twelve-hour shifts per day instead of the usual three eight-hour shifts.

"Evacuation" refers to [the relocation of operational and supervisory personnel of plants, the functions of which are scheduled to be transferred during the war to an existing similar or newly organized entreprise at a remote location . . . [and also all] persons . . . not employed within the national economy".

(2) There is the spirit that the civil defense (in this case evacuation and dispersal) will succeed: "The tremendous size of the territory of the country, the socialistic planning system, . . . the common ownership of the land, housing, plants, and municipal services make it possible to prepare the outlying areas in due time".

And, as stated earlier in this preface, confidence is expressed that an early dispersal and evacuation—prepared for in peacetime and utilizing "all means of transportation"—could reduce human losses to a level of 5 to 8% of the urban population.

(3) There are numerous lists, specifying all kinds of information: There are lists, for example, which indicate the various staffs required to perform a particular service together with the titles of the staff members and the number of people in each of their groups:

> "he staff of the [reception] center could include the following persons: the commandant, his 'political' deputy, the recording and checking group (10-12 persons), the building superintendent and his duty officers (3-5 persons), the group receiving the evacuees (16-21 persons), the equipping and dispatch group (6-7 persons), the canteen group (3 persons), medical station staff (2 persons), mother-and-children-room staff (2 persons), and the peace-keeping group (4-6 persons)".

There is a list which specifies what the evacuees should take along:

> ". . . clothing, footwear, underwear, bedding, food (for two or three days), medicines, and personal means of protection . . . total weight of the goods not [to] exceed 50 kg [110 lb] per person . . ., identification cards, draft card, school certificates, birth certificates . . ., employment booklet, evacuation certificate, and money".

(4) Contingencies are anticipated; instructions for each are included:

> "If the 'air alarm' signal is given when people are at home, they must warn their neighbors to shut off the electricity, gas, furnace, and kitchen range, close the windows, take documents and immediate necessities with them, and seek refuge in the nearest shelter".
>
> "If the alert is sounded while people are on their way to the assembly evacuation center or after they have arrived there, they must immediately take refuge in the nearest shelter".
>
> "If a motor convoy carrying people to the outlying area must pass through areas contaminated by radioactive, chemical, or bacterial materials, the contaminated zone must be bypassed on the windward side. If this is impossible, the convoy must go through the area at high speed, using personal protection devices, such as gas masks, respirators, face masks, protective clothing, gloves, and boots. After having passed through the contaminated area, all persons must be checked by the health service, and their clothes, shoes, and belongings decontaminated".

(5) Plans are complete—not half-formed: The evacuees are not merely to be rounded up and delivered to outlying areas; they are to be met, lodged, provided with fallout protection, food, other necessities, and even assigned work in their new location.

(6) And entering every aspect of civil defense is the "political work of the Party". Always there is the party to encourage, expedite, and lend a helping hand. "Under these difficult conditions the political and educational work of the party among the popu-

lation becomes especially important". This work includes assisting in the implementation of evacuation and dispersal, informing workers and the population at large of the general rules of conduct at evacuation centers, on the trip, and at the relocation centers, keeping up the morale of the population, counteracting enemy propaganda, averting panic, and maintaining order and discipline during the entire evacuation-relocation procedure. Further "special political activity . . . [is recommended] among the transportation workers on whose efficient operation the dispersal of workers and service personnel [would] depend.

**Chapter 6, "Instruments for Radiation, Chemical, and Bacteriological Survey and Dosimetric Control."** The sixth chapter is a somewhat technical description of various methods of detecting and measuring radiation. These include the ionization, photographic, chemical, and scintillation methods. Radiation dose, radiation level, degree of contamination, and units of measurement are all defined.

The operating principle of dosimetric instruments is explained, and the instruments for radiation surveillance and dosimetric control are described together with instructions for using them.

There are step-by-step instructions for preparing instruments for operation and for measuring the level of gamma radiation, beta radiation, and the concentration of radioactive contamination. Chemical survey instruments, their underlying principle, and methods for using them are also explained. In addition, there are detailed instructions for instrument storage.

**Chapter 7, "Assessing the Effects of Weapons of Mass Destruction on People, Animals, Foodstuffs, Plants, Fodder, and Sources of Water."** The seventh chapter is a detailed and comprehensive chapter which covers all possible effects of nuclear, chemical, and bacterial weapons on people, animals, plants, etc.

With regard to damage from nuclear weapons, three zones of nuclear destruction are distinguished—"complete," "extensive," and "minor"—and the nature and extent of damage in each zone, characterized.

Injuries from blast, thermal radiation, and penetrating radiation are described with degrees of burns and radiation sickness indicated and discussed. The effects of radiation on people, animals, plants, etc. are treated in detail.

Various chemical weapons are described and the degrees of poisoning from different chemicals distinguished. Similarly, biological weapons are described together with the diseases that they spread, the possible degrees of severity for each disease, the symptoms, the usual course of illness, and the prognosis. In discussing methods of spreading these infectious diseases, the Soviets point to "contaminating the air" as "the most dangerous method. . . . The microbe vehicle is an aerosol, that is, a suspension of the smallest drops of liquid (fog) or of dried culture (dust) in the air. The microbes are propagated over large areas—thousands and tens of thousands of square kilometers". That such large areas may be covered by aerosols is clearly one matter of concern to the Soviets; another is the stability of these "highly virulent activating agents . . . in the presence of physical and chemical factors and antibiotics . . .". And complicating the situation still further, as Chapter 12 indicates, samples of air, soil, plants, water, insects, etc. must be sent to a laboratory for examination to determine the nature of the disease —a time-consuming procedure.

Infectious diseases are categorized according to whether they affect man (bubonic plague, Asiatic cholera, smallpox, typhus, etc.), animals (foot and mouth disease, rinderpest, swine distemper), or both man and animals (malignant anthrax, botulism, glanders, tularemia). Possible damage to plants from nuclear, chemical, and bacterial agents is also treated.

**Chapter 8, "Protection of Animals, Food Products, Plants, and Sources of Water from Weapons of Mass Destruction."** The eighth chapter is a logical sequence to Chapter 7 in that it discusses methods of protection from the effects of the nuclear, chemical, and bacterial weapons described in Chapter 7. The section, "Protection of Animals," for example, describes such means and measures of protection as animal shelters, evacuation to nearby forests or pastures, immunization against diseases, the advance use of special anti-radiation chemicals, and gas masks. Should these means fail, there are instructions for treating animals for irradiation, burns, poisoning, and infectious diseases.

Methods of protecting food, water, and fodder are given and also rules for destroying, or decontaminating and then using, food which has become contaminated by radioactive, poisonous, or bacterial substances.

**Chapter 9, "First Aid in Time of Disaster."** The ninth chapter presents standard Russian first aid procedures: ways of stopping various types of bleeding (venous, arterial, capillary), methods of applying bandages, directions for applying splints, treatment of burns, etc.

Of particular interest is the attention the Soviets give to the prophylaxis and treatment of radiation sickness. The 'standard' first aid kit, which is evidently to be universally distributed on an individual basis, contains "anti-radiation tablets and anti-vomiting tablets (potassium iodide and etaperasin)." Instructions specify that "a single tablet of etaperasin is given when the first signs of radiation sickness (dizziness, nausea) appear. . . ." For ten days after the occurrence of fallout, "a single [daily] tablet of potassium iodide" is prescribed. The "individual standard first aid packet also contains tetracycline, which is given in doses of two tablets twice a day for three days after exposure to radiation, and another drug [not identified] which is

given in doses of four tablets . . . in the first few days after exposure to ionizing radiation".

The "individual first-aid packet" contains special tablets and atropine in a syringe tube to be used to treat contamination with poisonous substances. One of the tablets is taken for protection before exposure to substances which paralyze the nervous system (sarin, soman, V-gases), whereas the atropine solution in the syringe tube is administered subcutaneously or intramuscularly immediately after exposure. The syringe tube used to administer the antidote quickly is described together with the method of injection.

A liquid (reagent) is provided in the "individual, anti-chemical package (ICP)" for treating contaminated, exposed parts of the skin. Here, too, instructions for using this package when poisonous substances fall on the skin or clothes are given.

No less than four methods of artificial respiration are described, usually to be administered when poisonous substances such as sarin, hydrogen cyanide, or carbon monoxide impair respiration. These methods include the use of special automatic machines, mouth-to-mouth breathing, the Schaefer method, and the Labord method. This last is to be used only "when injuries to the ribs or upper limbs make all other methods of artificial respiration impossible".

This chapter also includes general methods for isolating and treating people infected with contageous diseases.

**Chapter 10, "Responses of the Rural Population on Threat of Attack and on Various Civil Defense Signals."** The tenth chapter describes the appropriate responses of the population to the threat of attack and to the seven civil defense signals: Air Alert, All Clear from Air Alert, Threat of Radioactive Contamination, Radioactive Contamination, Chemical Attack, Bacteriological Contamination, and Threat of Flooding. Instructions are specific and vary according to the location of the individual when the signals are sounded —at home, in a theater or restaurant, on a bus, in the field, etc.

**Chapter 11, "Civil Defense Plan of a Rural District, Kolkhoz, or Sovkhoz."** The eleventh chapter is important because it describes the organization of civil defense at the grass roots level, where it counts the most—in the county and on the collective and state farms. The reader should realize that the "civil defense plan" of a county or farm is by no means a vague concept in some politician's mind; it is a well formulated, written document, available for official use. This document contains an assessment of the human and material resources of the kolkhoz, sovkhoz, or county and describes the order of using them for fulfilling civil defense needs. The plan consists of three parts, one of which delineates the organization and execution of the civil defense program and includes eight sections:

(1) Protection of the population,
(2) Anti-radiation and anti-chemical protection,
(3) Medical supply,
(4) Organization of warning, control, and communications systems,
(5) Human resources,
(6) Organization for providing civil defense capabilities,
(7) Protection of domestic animals,
(8) Civil defense measures to be taken in periods of preparation for war.

The particular methods of protection against weapons of mass destruction chosen by a kolkhoz or sovkhoz are determined, for the most part, by the degree of danger, which in turn, depends primarily on the distance of the kolkhoz or sovkhoz from potential economic and military targets. Thus, a collective farm near a large industrial city is potentially vulnerable to all the prompt effects of nuclear weapons, whereas a collective farm far away from such a city is potentially threatened only by fallout.

Considerable treatment is given to the format of the civil defense plan: a written resolution or decree together with a number of appendices. These include: (1) a calendar plan for executing the program, (2) a plan for receiving and relocating evacuees, (3) a plan for creating civil defense formations in kolkhoz and sovkhoz, (4) a plan for protecting the population and agricultural production, (5)a communications and warning system, and (6) an estimate of the material and technical resources. Of these appendices, the calendar plan is the most important: it is the working document of the civil defense chief of the county or farm, through which he can direct the people and equipment under his authority. It includes all the civil defense activities: warning the formations and the population; organizing the system of observation; training formations, and providing them with operating personnel, instruments, and equipment; equipping basements, vegetable storage cellars, and homes for protecting the population; constructing dugouts; preparing simple protective clothing; creating adequate supplies of feed and water on animal farms; etc.

It is significant that in addition to the written civil defense plan and its appendices, "each economic unit [state farm or collective farm] has an order from the regional war commission (RWC) listing the equipment (automobiles, tractors, etc.) to be transferred to the Armed Forces on the declaration of mobilization. On planning the civil defense of a collective or state farm, this equipment should not be included for supplying the brigade units, since it will be withdrawn at the time indicated in the above order".

Thus, Chapter 11 describes the civil defense plan in great detail—its purpose, format, and content.

**Chapter 12, "Executing the Civil Defense Plan on a Collective or State Farm."** The twelfth chapter is a logical sequence to Chapter 11 in that it indicates

how the civil defense plan is set in motion in the event of a threat or an actual nuclear attack.

Instructions are explicit and specific. For example, if a person is making a radiation survey on foot, he "carries the dosimetric instrument 100 meters [110 yd] ahead of the group and turns it on every 150-200 meters [164-220 yd]".

"To measure the contamination of oats, a sample is taken and spread evenly over the bottom of a 10 x 15 cm [3.9 x 5.9 in.] dish in a layer one grain deep. The probe head is then brought to a distance of 0.5-1 cm [0.2.04 in.] . . . . The number of counts that are obtained is multiplied by 150 (area of oats in a small dish) and divided by the number of grams in the sample. The results will give the contamination of 1 gram [0.035 oz] of oats".

Tables, graphs, and formulas are given for quickly determining facts essential to forming radiological defense plans under war pressures. For example, to determine the elapsed time since detonation of a distant groundburst causing the local fallout, instructions are given for taking dose rates at any one of six listed time intervals, finding the ratio of two dose rates, and then simply reading off from a table, the "Time After Explosion."

Other formulas are also given, such as one for estimating the radiation dose to a brigade in a covered tractor trailer crossing contaminated land under various conditions. In each instance, instructions are straightforward and specific, and illustrative problems are presented and solved.

**Chapter 13, "How Formations of a Rural County, Collective Farm, or State Farm Perform Rescue Work in a Stricken City."** The thirteenth chapter describes the rescue-reclamation activities of the civil defense formations, as well as the means of transporting them to their destination, the methods of crossing contaminated land, the chain of command from which they receive their orders, and their activities en route (such as conducting surveys of various kinds).

Much of the chapter describes the actual work of the rescue formations: fighting fires, clearing blocked passageways, extricating people trapped under ruins, rendering aid to the injured, and, when necessary, cutting off and repairing electrical, water, and gas lines. And there is the usual lengthy description of the "political work of the Party," in this case, to maintain morale and discipline during rescue-reclamation activities.

**Chapter 14, "Mechanical Equipment Used for Decontamination, Plant Protection, and Veterinary Treatment of Animals."** The fourteenth chapter describes the use of agricultural, construction, and road equipment to decontaminate, disinfect, and de-gas land, agricultural plants, animal buildings, warehouses, and other various installations. There are detailed instructions for operating specific models of tractor blower sprayers, garden blower sprayers, tractor mounted sprayer dusters, hand pump sprayers, and vacuum liquid tank sprayers as decontamination and degassing devices.

**Chapter 15, "Training the Rural Population in Civil Defense."** The fifteenth chapter describes how specialized civil defense groups (civil defense staffs, service units, formations), school children, and the general non-working population of the rural areas are instructed in civil defense. It includes information on preparing the brigades for performing rescue work.

Directives include infusing instruction with communist ideology and party spirit, combining book learning with drills and exercises, and making abundant use of visual aids. Much of the chapter consists of definitions of such terms as "explanation,""demonstration," "exercise," "seminar," "consultation," "excursion," and "examination." There are also directions for instructors on preparing their lessons.

## Questions Not Addressed in the Handbook

There are a number of questions which are evidently beyond the scope of this handbook. For example:

(1) Under exactly what circumstances would the order for evacuation be given?

(2) Would two or three days be sufficient to evacuate the population during a period of crisis escalation?

(3) Might not such evacuation itself trigger an attack?

(4) How many blast shelter spaces are available for people in cities?

(5) To what extent are food and medical supplies stockpiled and available for civil defense use?

(6) How many fallout shelter spaces presently exist in the countryside and how many must be built during a crisis?

(7) How vulnerable are rural power supplies?

That the Soviets are indeed addressing many of these as well as other questions is apparent in articles that post-date this handbook. L. Korzun in "The Time Factor," for example, devotes "serious attention to the matter of decreasing the amount of time spent on evacuation measures."

And N. Makushenko, Deputy Minister of Agriculture, Ukranian SSR, in "Increasing the Readiness of the Service," expresses the Ministry of Agriculture's concern with creating a local electric power base and claims that "measures are being taken to see to it that each kolkhoz has its own autonomous electric power generator."

In the same article, Mr. Mukushenko goes on to mention the "intensive construction of special storehouses with refrigerating units" in the Ukranian Republic for storing food products. "Their design capacity is calculated at 500-600 tons of products at a temperature of from +3° to −2°C. Of course," he continues,

"the storehouses are very suitable in solving civil defense tasks." Such articles show sustained Soviet interest in upgrading civil defense.

## A Few Words on the Translation of this Text

The Soviet text was first put into literal English and then edited into grammatical English. While it is not a word-for-word translation, we have attempted to render an accurate transmission of each idea, neither omitting nor adding.

All footnotes are editorial, explanatory material, written by us, the U.S. editors. Brackets [ ] are used throughout the translation for our editorial insertions; parentheses ( ), for Soviet insertions included in the original. To facilitate reader understanding, where Russian metric units occur, we have placed the appropriate English unit values beside them in brackets.


## Acknowledgments

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Joanne S. Gailar
Cresson H. Kearny


# CIVIL DEFENSE (Grazhdanskaya Oborona)


*N. I. Akimov, M. L. Vasilevskii, I. D. Makarov, L. P. Rusman*
*M. P. Umnov, 1969*


This handbook is written for all faculties or agricultural institutes. It presents the role of civil defense in strengthening the security of the country, the organization of civil defense, and the personal and collective[1] means of defense. It contains information on instruments for detecting radiation, chemical substances, and bacteriological agents and on the effects of weapons of mass destruction on people, animals, food supply, plants, fodder, and sources of water. The book discusses problems of developing a civil defense plan for a rural county, a kolkhoz[2] and sovkhoz.[3] It also deals with the participation of groups of kolkhozs ans sovkhozs in performing rescue and emergency working a damaged city. Recommendations are given for maintaining agricultural production under various conditions of soil and plant contamination. Procedures for dispersing the urban population to rural areas are also outlined.

There are 28 tables and 85 figures in the book.

The handbook can be used by teachers and specialists of agricultural enterprises and by civil defense groups in kolkhozs, sovkhozs, and active agricultural soviets.

This book was prepared by all the authors. Chapter 1, 5, 6, 11, 12, 13, 14, and 15 were written by N. I. Akimov; chapters 7 and 8 by M. L. Vasilevskii; chapters 2, 3, 4, and 10 by L. P. Rusman; and chapter 9 by I. D. Makarov.

Comments and suggestions on this handbook can be directed to the following address: Moscow, K-31, Dzerzhinskii Street, 1/19, Publishing House "Kolos".

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[1] "Individual" or "personal" means of defense refers to personal protective equipment, such as gas masks, coveralls, and boots, while "collective" means refers to shelters.

[2] A kolkhoz is a collective farm. It is owned collectively and run by a general meeting of all the members, who share the farm income after taxes are paid to the state. Each kolkhoz family is allowed to own its homestead, a few head of livestock, and a small plot of land.

[3] A sovkhoz is a state-owned farm. It is often referred to as a "rural factory" or "factory in the field" because it operates under the same laws as an industrial enterprise, that is, its members are salaried and its management is appointed by the Ministry of Agriculture rather than elected by farmers.

# Introduction

The Communist Party and the Soviet Government follow a policy of peace directed toward avoiding a new world war and achieving general and complete disarmament. The Soviet Union was the first to sign an agreement forbidding the testing of nuclear weapons in three media—the atmosphere, space, and underwater. It also initiated a treaty on the nonproliferation of nuclear weapons. An important step toward peace was the formation of the Budapest Council of Nations, which participated in the Warsaw Agreement for all European countries, in which the socialist government presented concrete suggestions for strengthening security in Europe.

Also, in the future, the Soviet Union will strive for peace, the safety of peoples, and the security of nations, as well as the Leninist principle of peaceful coexistence of governments with different social systems. It will seek to resolve international problems by means of negotiations. Soviet objectives include: limitation of the arms race, disarmament, elimination of the causes of war, easing of international tension, and development of peaceful coexistence among nations. The Soviet people believe that peace is possible if all the peaceful forces of society cooperate to achieve it.

However, the imperialistic governments are expanding the production of different types of space equipment, strategic and ballistic rockets, nuclear and thermonuclear devices, and chemical and biological weapons. This activity is dangerous to all society. By using weapons of mass destruction, it is possible to destroy large cities, factories, industrial plants, populated regions, and other areas of strategic importance, while it is also possible to contaminate an enormous land area.

Therefore, as long as the danger of war initiated by imperialist government exists, as long as agreement is not obtained on general and complete disarmament, the Communist Party, Soviet government, and the entire Soviet nation will devote considerable attention to strengthening the security of the country. Civil defense is organized to protect various targets of enemy attack from the effects of nuclear, chemical, and biological weapons and systematically to instruct the population on the effects of an enemy attack during the period of threat, during attack itself, and after weapons of mass destruction have been used.

In this book we consider the organization and execution of civil defense mainly in the kolkhozs, sovkhozs, and rural areas. Problems involving the effects of weapons of mass destruction on people, animals, plants, fodder, food supply, buildings, and other objects are presented along with the means of protection against such weapons effects. Related aspects of agricultural production are also taken into account. Considerable attention is devoted to civil defense measures in areas contaminated by radioactive, chemical, and bacteriological substances[4] and to rendering assistance to a damaged city.

CHAPTER 1

# Civil Defense in a Nuclear War

The twenty-third session of the Communist Party of the Supreme Soviet has devoted considerable attention to the problems of significantly strengthening the security of our country. A resolution from the summary report of the Central Committee of the Communist Party points out: "Under conditions in which the aggressive forces of imperialism intensify international tension and create causes of war, the Communist Party will increase the vigilance of the Soviet people and strengthen the defense capability of our country so that the armed forces of the USSR will always be ready vigorously to resist the conquest of socialism and give a crushing rebuff to any imperialist agressor."

A peace-loving foreign policy, which is firmly and consistently followed by the Soviet Union, evolves from the very nature of our society. The Soviet people need peace to attain their goal: building communism. Therefore, the Soviet people, along with the peace-loving forces of other countries, are vigorously fighting to reduce international tension and avoid a new world war. However, reactionary forces of imperialist governments, headed by the USA, are intensifying the arms race, building armies with millions of soldiers, forming aggressive war blocs, and surrounding the countries of the socialistic commonwealth with rockets and military air bases. Appropriations for the production of strategic weapons, and above all for the development of rocket nuclear weapons, constitute a large part of the war expenditures of the USA. In 1960, in comparison with expenditures for military aviation, the cost of strategic missiles was only 5%; in 1965 it increased to 50%, and in 1967 to 70%. In 1961 the USA had 35 rocket units and one rocket-carrying atomic submarine, but in 1966 it had more than 700 intercontinental rockets and 32 atomic-rocket submarines. In the USA the militarization of industry is increasing. If military

[4] Throughout this text the Soviet use of the term "bacteriological substances" (or agents) is usually extended to include other infective agents, such as viral and rickettsial, which are not bacterial in nature.

expenditures in the USA were 30% during the second world war, they have now risen to 40%.

Aggressive blocs and groups represent a great danger for unleashing a thermonuclear war. The main aggressive bloc—NATO—is in a state of constant wartime readiness; the USA uses it to convert western Europe into a springboard for war near the borders of the Soviet Union.

The main partner of the USA in Europe is imperialistic West Germany. The North Atlantic bloc assigns a decisive role to the militaristic forces of West Germany The leaders of NATO regard the Bundeswehr, which was rapidly revived by the revanchist forces of the Federal Republic of Germany, as NATO's main striking force against the socialist countries. With the help and support of the USA, Bonn militarists are strenuously converting the economy of their country to a wartime footing. Expenditures for preparing the country for war are continuously rising in the Federal Republic of Germany. Generals and officers of West Germany occupy many command posts in NATO.

The aggressive actions of American imperialism have become vividly apparent in recent years. Strengthening the defense of the country and the power of the Soviet Armed Forces is a sacred duty of the Party and the entire nation and is the most important function of the socialist government. Therefore, the defense capability of the Soviet Union must be greatly strengthened to defend the Soviet people and the entire socialist commonwealth from the danger of imperialist aggression and to strengthen the position of the peace-loving and liberating forces throughout the world.

Full growth of all sectors of the national economy—metallurgy, machine construction, transportation, chemical industry, etc.—is of prime importance in strengthening the defense capability of the country.

With continuous development and protection of the agricultural economy, it is possible to satisfy the growing needs of the population for food, agricultural raw materials, and a strategic food reserve.

The strengthening of the socio-political unity of socialist society, the growth of political consciousness, and the education and culture of the Soviet people also play an important role. Our party holds sacred Lenin's precept to constantly strengthen the defense capability of the country.

## Character of a Future War, Weapons of Mass Destruction, and Means of Delivery to Targets

### Character of a Future War

Nuclear energy was discovered within the last twenty years. Aerodynamics, rocket dynamics, space navigation, cybernetics, radioelectronics, mathematics, and other sciences have undergone rapid development. As a result of the enormous scientific-technological progress, new fields of industry have been created, such as the atomic field, rocket construction, electronics, and others. The automation of industrial production has become widespread. All this has had a decisive effect on the wartime equipment of armies and on their organizational structure. At present new military forces (rocket forces, anti-rocket defense) are being created, and the previously existing armed forces are being supplied with the latest equipment. The existence of nuclear weapons with unprecedented destructive power, space ships, different kinds of rockets, and other perfected means of war also affects the character of a future war.

If the imperialists were successful in unleashing war, it would be an armed struggle among countries of two opposite world systems—capitalist and socialist. Above all, it would be a war of the imperialist bloc against the Soviet Union.

Thus it follows that a new world war, if the imperialists should unleash it, would be waged with the widespread use of weapons of mass destruction and, above all, nuclear weapons. Such a war could encompass an enormous area and involve whole continents. Not only troops, but also centers of vital industry, transport, energy production, and communications would be subject to devastating attack.

It would be possible to contaminate large areas with radioactive fallout and bacteriological agents. Distinctions between front and rear would disappear. Therefore, the defense capability of the socialist government does not consist only of high combat readiness and ability to supply the armed forces; it is also inseparably connected with a high level of economic development and the preparation of the population and national industrial centers for protection against weapons of mass destruction.

### Weapons of Mass Destruction

Nuclear, chemical, and biological weapons, which can injure large numbers of people and at the same time damage numerous industrial and agricultural centers, are described as weapons of mass destruction. Of these, nuclear weapons are the most powerful. The damaging attributes of a nuclear weapon are the shock wave, light [thermal] radiation, penetrating [prompt] radiation, and fallout. The total effect of all these factors is called the combined damage.

The power of a nuclear explosion is given in terms of the weight of an equivalent amount of TNT, the explosive energy of which is equal to the explosive energy of the given nuclear weapon. The power of a

nuclear explosive can be as much as several millions of tons. The radii of destruction and the areas of contamination after the explosion are as follows:

| Power (Megatons) | 10 | 50 | 100 |
|---|---|---|---|
| Destructive radius for city buildings (km) | 28 [17 miles] | 40 [25 miles] | 50 [31 miles] |
| Contamination area ($km^2$) | $70 \times 10^3$ [$43 \times 10^3$ sq miles] | $450 \times 10^3$ [$280 \times 10^3$] | $780 \times 10^3$ [$484 \times 10^3$] |

It is evident from this data that one nuclear explosion is sufficient to destroy a large city with a population of millions and to contaminate an enormous area with radioactive materials. The area subjected to the direct effect of a nuclear explosion is called the site of nuclear damage.

In agricultural regions, people, animals, and plants would be affected by fallout; and food products, fodder, water sources, and other assets would be contaminated. In zones of dangerously high radioactive contamination, it would not be possible to undertake agricultural work until the level of radiation fell. Intermittent agricultural work could be performed only in a zone of moderate contamination and then only when all required precautionary measures were observed. The complex situation that could result from radioactive contamination makes it necessary for leading workers and agricultural specialists to inaugurate extensive measures to protect people, animals, plants, fodder, food supply, and water sources.

In addition to perfecting and accumulating implements to wage nuclear war, the USA is vigorously creating chemical and biological weapons. These weapons were used by the U. S. armies in Korea and Viet Nam. Appropriations for the study and production of chemical and biological weapons are steadily increasing.

Chemical weapons include poisonous substances, chemical means of damaging plants, incendiary materials, smoke-forming mixtures, and equipment for using these materials. Chemical weapons can inflict extensive damage on people, animals, and plants and can contaminate land, industrial plants, equipment, food products, fodder, and water sources.

The main chemical weapons are poisonous substances, divided into the following groups according to their effects on people and animals. First are the nerve-paralyzing gases (V-gases, sarin, and others) which damage the central nervous system. Then come the skin-blistering gases (mustard gas) which damage the skin. Next come the gases which have a general toxic effect (hydrogen cyanide) and cause general poisoning of the organism. Last are the asphyxiants (phosgene) which damage the respiratory organs. The most important gases are those which paralyze the nerves and blister the skin.

Areas of chemical contamination occur in regions where chemical weapons are used and inflict damage on people, animals, and plants. The size of the chemically contaminated area depends on the type of substance, the scale on which it was used, the means of application, meteorological conditions, and the topography of the land. It is estimated that one B-52 bomber carrying 7 tons of V-gases can contaminate an area of 250 $km^2$ [97 sq miles].

The arsenal of biological weapons includes microbes and toxins; insects and rodents infected with microbes to spread the disease to people, animals, and plants; and the means by which these are disseminated. Areas which are directly subjected to bacteriological agents and thereby become a source of spreading infectious diseases are called foci of bacteriological contamination. The size of the area depends on the type of weapon, the bacterial mix, the scale and method of use, meteorological conditions, the rapidity of detection, and how soon prophylaxis, treatment, and disinfection are inaugurated.

Bacteriological agents may cause infectious diseases in people and animals. Among the diseases which have been studied in detail in the USA are the following: bacterial infections such as Siberian sores (malignant anthrax), brucellosis, glanders, bubonic plague, and tularemia. The rickettsial diseases include Q-fever and Rocky Mountain spotted fever. The virus infections include dengue fever, a number of types of encephalitis, psittacosis, and yellow fever. In recent years considerable attention has been given to disease vectors of agricultural plants, in particular to various types of rusts, phytophthora (plant infection) and the vector of piricularia of rice.

Much significance is given to problems of sudden and massive use of chemical and bacteriological weapons. Specialists of the War Department of the USA figure that poisonous substances and disease-bearing microbes have advantages over other types of weapons because they are cheaper, can damage large areas, and can cause death to an enormous number of people.

Chemical and biological weapons are the most dangerous for agricultural regions. They can create great difficulties in performing agricultural work, especially during seeding and harvesting, and also in supplying industrial centers with food products and raw materials.

### Means of Delivering Weapons of Mass Destruction

To deliver weapons of mass destruction to targets, different delivery systems can be used.

From a strategic standpoint, ballistic rockets are the main carriers for weapons of mass destruction (Fig. 1). The probability of damaging the target with a ballistic rocket is very high.

The USA has the following main types of strategic rockets: intercontinental: "Titan 2" and "Minuteman"; of average range: "Polaris A-2" and "Polaris A-3."

The Titan-2 rocket is propelled by liquid fuel. The flight range is up to 23,000 km [14,260 miles].

The Minuteman is a three-stage solid propellant rocket. Its motor operates on solid fuel, contained in special ampules and therefore not significantly in-

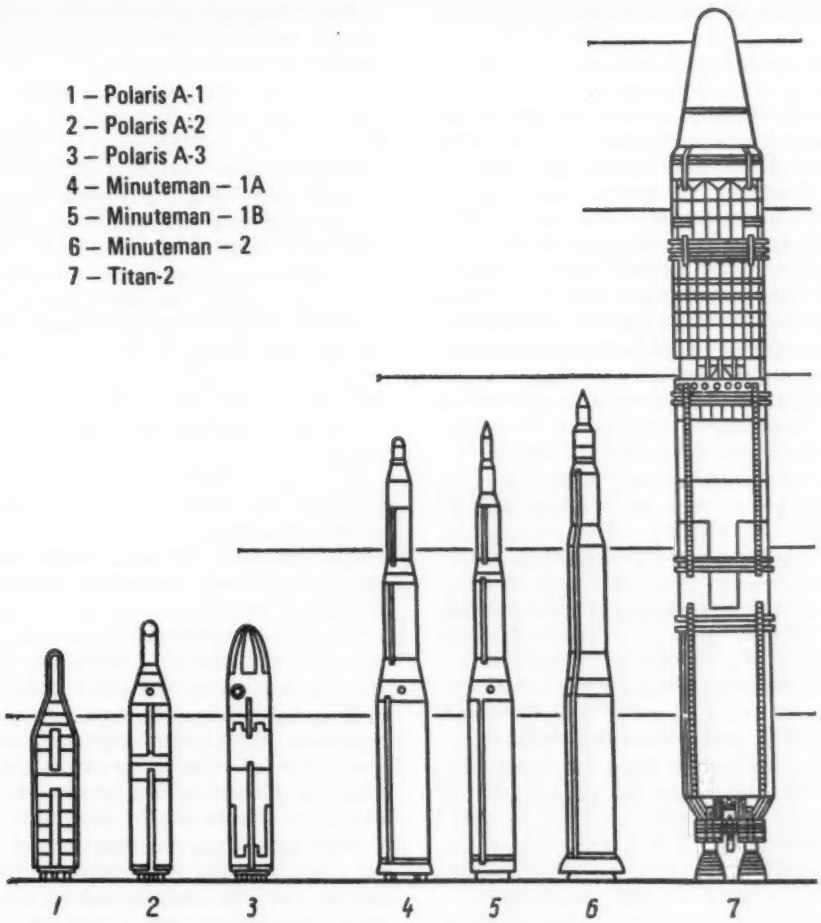


Figure 1. Ballistic Rockets of the USA.
(The horizontal lines are drawn through each 6.1 meters) [6.7 yd]

fluenced by the external medium. These rockets have a high readiness (30-seconds) and a range up to 10,000 km [6,200 miles].

Atomic submarines are usually armed with Polaris rockets. The rockets may be launched from the submarine at a depth of 30-40 meters [32.8-43.7 yards] and a cruising velocity of 2 knots. The flight range is up to 4,600 km [2,852 miles].

The USA has devoted considerable effort to the conquest of space since space is considered an important theatre of war. Even now hundreds of American spy satellites cover the space near the earth. Piloted space ships with command centers on board are being developed with a flight duration of at least one year.

Airplanes and winged rockets may also be widely used to deliver weapons of mass destruction to intended targets. At present airplanes and winged rockets have flight velocity of up to 4,000 km/hr [2,480 miles/hr], a ceiling of up to 35 km [21.7 miles] and a range of up to 1,700 km [1,054 miles].

## The Role of Civil Defense in Strengthening the Defense Capability of the Country

A local anti-aircraft defense (LAD) was created in our country before the Great Patriotic War [World War II]. Since fascist Germany did not have the means of penetrating into our territory to damage regions and centres throughout the entire country, there was no need before World War II to organize the defense of the population and national centres on a countrywide scale. The farthest ranging means of penetration were

airplanes whose radius of action did not exceed 1,000 km [620 miles].

For attacking various targets, the fascists ordinarily used only high explosive and incendiary bombs. Under these conditions the defense of the population and separate installations was conducted only in those cities and regions which were within the range of enemy aircraft. Further, the human and material resources of each separate region and center were ordinarily used for rescue and emergency work. Consequently, all activities to protect the population, animals, and various installations were of a local character and were labelled local anti-aircraft defense.

With the appearance of nuclear weapons and other weapons of mass destruction, there was a basic change in the size and character of measures to protect the population and economic centers such as cities, factories, plants, kolkhozs, sovkhozs and others.

If the imperialists should succeed in unleashing a thermonuclear world war, then many administrative, industrial, political, and military centers, ports, airfields, mining enterprises, and other important installations could be subjected to nuclear and chemical attack, and the surrounding territories contaminated with radioactive fallout, poisonous chemicals, and bacteriological agents. If a 20-megaton thermonuclear warhead were detonated over a large city, a substantial portion of the population could perish from the shock wave, thermal emission, and penetrating radiation.

Under such circumstances as these, the local anti-aircraft defense could not protect the population and the economic centers. The complex problems of safeguarding the population and industrial sectors of the country can be resolved only by a nationwide effort under the laedership of the Party and government.

Therefore it is necessary to have an entirely new federal system of defense charged with the development and execution of defense measures to protect the population and the economic centres of the country as a whole in each province, district, city, and village. Civil defense is such an organization in our country. In theory and practice and in principles of organization it is a national system involving all the people. It is established to protect the interests of all the people. The entire Soviet population and all our government and social organizations are concerned with its development and perfection. Civil defense in our country is geared to protect a peace-loving population and its property throughout the entire country against the effects of weapons of mass destruction.

Civil defense is a national system of defense measures, carried out during peace and war, to protect the population and increase the operating stability of the national economy under conditions of attack by nuclear, chemical, and biological weapons and also to perform rescue and urgent emergency work in centres of mass destruction.

The main concerns of civil defense are to protect the population from weapons of mass destruction, to protect industry and maintain production in wartime, and to perform rescue and urgent emergency work in centers of mass destruction.

Protecting the population from weapons of mass destruction is the main goal of civil defense. It can be reached only by applying all available means and methods to each particular situation.

If the population is to receive timely protection from weapons of mass destruction, it must have an efficient warning system. For this purpose, even in peacetime, it is necessary to develop a warning and communications system and maintain it in a constant state of readiness. Warning the population is the responsibility of the civil defense staffs. In rural regions the people would be warned by wire communication, radio, mobile communication systems, and sound signals.

The rural population would be protected primarily against fallout, chemical substances, and bacteriological agents. Included in this group are members of kolkhozs and sovkhozs and also that segment of the urban population which has been dispersed to areas outside the cities. People remaining in the cities would receive additional protection from the direct effects of nuclear weapons.

For their protection, the rural population is provided with personal protective equipment and dugouts, and the city population with reliable shelters as well.

While the plan to issue factory-produced personal protective equipment is important, it is also essential that the people themselves prepare in advance simple means of protecting their respiratory organs and skin and know how to use the protective devices.

Working and service personnel of plants that have not curtailed their production activities in the cities can use available shelters such as subway systems and other installations which provide protection from weapons of mass destruction.

Fallout shelters for the population of rural areas, kolkhozs, and sovkhozs, and also for evacuated city populations in zones outside the cities, are prepared in advance.

If the population is to be protected, buildings, storage bins, cellars, silos, and other installations must be adapted as cover.[5]

Working and service personnel of plants which are not operating or have temporarily ceased operating in wartime will be dispersed for their own protection, and the non-working population of various enterprises and school institutions evacuated to zones outside the cities.

The dispersal of working and service personnel and the evacuation of the population from large cities are effective means of defense. Through dispersal and

[5] The Soviets distinguish between "shelters," which protect from the prompt effects of nuclear weapons and also from chemical and bacteriological substances, on the one hand, and "cover," which protects primarily from fallout, on the other. It is noteworthy that even for protection against fallout, the Soviets recommend dugouts or existing installations that are already at least partially below ground.

evacuation, urban populations can be removed from possible target areas for nuclear strikes.

If urban evacuation and dispersal are to succeed, the dispersal zones outside the cities must be carefully planned ahead of time. It is also important to make advance provision for transportation and to use all types of transport. Transport would also be needed to bring supplies from the cities to the outlying zones, to transport trained factory formations[6], to deliver victims in need of first aid to assembly points, and to execute other measures.

Regional executive committees of workers' councils, rural Soviets, and the civil defense heads of kolkhozs and sovkhozs must organize the reception and relocation of workers, service personnel, and the nonworking population and then make sure they are provided with the necessities of life and work in the dispersal and evacuation[7] areas.

No less important are the problems of protecting food supplies and water sources and also creating necessary food reserves, medical stores, and other essential items. Measures to protect food supplies and water sources and to create necessary reserves are planned and developed in peacetime. The population should know the simplest methods of protecting their own food supplies and water at home.

To protect the population against the dangers of contamination, it is important to have radiation, chemmical, and bacteriological detection and laboratory control. These tasks will be performed by observers at posts which monitor external radioactivity and by other specialists.

The successful protection of the population depends largely on the ability of the people to learn methods for protecting themselves from weapons of mass destruction. The purpose of giving instructions to working people, service personnel, members of kolkhozs, and the nonworking segment of the population is to instill in them habits of conduct under war conditions involving weapons of mass destruction and especially to teach them the correct use of the means of protection. Through instruction it is possible to prepare civil defense brigades to inaugurate protective measures and undertake rescue operations in centers of mass destruction and contamination.

Anti-epidemic, prophylactic, and other special measures to increase the resistance of the people to radiation and infectious diseases can enhance the protection of the population. The execution of these measures depends, of course, on an adequate medical staff and supply of medicines.

To prepare economic centers for continuous operation under conditions of enemy attack is a most complex task. Only by making elaborate plans and preparations in peacetime is it possible to decrease significantly the loss of human life and assure continuous production of essential items.

To assure the continuous operations of economic centers, the following steps are necessary: to plan and execute in advance measures to protect working and service personnel from weapons of mass destruction at economic centers and at the dispersal points, to devise an adequate warning system to announce the threat of enemy attack, to organize a reliable civil defense control system, to convert a plant to a particular mode of operation at the proper time, to create self-contained systems of control and of supplying raw materials at the operating centers, to instruct the working and service personnel at the centers in advance, and to prepare brigades for carrying out rescue and reclamation work as soon as possible.

An important plant civil defense measure is to plan ahead how a plant should run during a period of threat, after a warning has been given, and in time of war. Such successful preparation would minimize losses and maintain essential production after an enemy has used weapons of mass destruction.

Similarly, agricultural production centers can be protected from weapons of mass destruction by advance planning and preparation.

It is necessary to take measures ahead of time to safeguard animals and unprocessed food supplies from weapons of mass destruction, and water sources and fodder from contamination by radioactive, chemical, and bacteriological substances.

If these measures are to be executed, specialists from all agronomic and veterinary institutions and also the formations of rural areas, kolkhozs, and sovkhozs must be involved. It is necessary to prepare farm buildings to protect animals, storage places, and agricultural products from contamination by radioactive, chemical, and bacteriological substances; to immunize animals; to prepare formations to protect animals, plants, food supplies, feed, and water sources; and to stock the necessary materials for covering seed, feed, vegatables, and other agricultural products during the period of harvesting, treatment, transportation, and storage.

Rescue and urgent emergency work is organized and started immediately after an enemy has unleashed weapons of mass destruction. For this reason it is important to organize, instruct, and supply brigades;

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[6] The civil defense formation constitutes the basic civil defense unit in the Soviet Union. Also sometimes referred to as brigade, cell, unit, detachment, team, and squadron, it comprises, according to Marshal Chuykov, Chief of Soviet Civil Defense, the "main force of civil defense" (V. I. Chuykov, *Civil Defense in Nuclear Missile War*). It may vary in size from few to many members and its principal purpose is to perform rescue and emergency restoration operations in centers of mass destruction.

[7] The Soviets plan to protect their urban population agrainst possible nuclear attack primarily through relocation in areas outside the cities, where they would be safe, presumably, from the prompt effects of nuclear weapons. *Dispersal* applies to workers and supervisors in vital industries and to their families and denotes removal to an area approximately 60 to 80 kilometers [37.2-49.6 miles]—a four to five hour round trip—from their work in the city. *Evacuation* applies to all other elements of the population— workers in nonessential industries or industries which can have their functions transferred outside the city, unemployed persons, school children, retired people, invalids, etc.—and denotes removal to rural areas remote from the city.

to plan in advance their activities during a period of threat and after weapons of mass destruction have been used; to make suitable corrections and more realistic plans for civil defense under conditions of war; to assure the brigades' prompt assemblage at their bases and prompt deployment to populated regions; and to guide the brigades in their performance of rescue and urgent emergency work with full recognition of the developing situation, using written instructions.

The primary task of the brigades would be to rescue people in centers of destruction. Their success would depend primarily on how well the brigades were prepared for this type of operation.

Civil defense brigades of the kolkhozs and of the sovkhozs would undertake rescue and recovery work in their own damaged centers. If necessary, some of the brigades of the kolkhozs and sovkhozs (especially the rescue, sanitary, and decontamination units) could be used to perform rescue and urgent emergency work in a damaged city.

Thus, by preparing cities, rural areas, kolkhozs, sovkhozs, and other economic centers in advance and by training the entire population in how to defend itself against weapons of mass destruction, it is possible not only to decrease losses of people, animals, agricultural products, and other goods, but also to assure the normal operation of enterprises[8] throughout the country.

### The Role of Party, Government, and Social Organizations in Solving Civil Defense Problems

The complex and diverse problems of civil defense can be solved successfully only if there is a high level of political party activity, discipline, and preparation of the population and the brigades at the centers and also only if the activities of Party, government, and social organizations fulfilling these tasks are highly integrated.

The guiding and organizing force of civil defense in the Soviet Union is the Communist Party. Through its purposeful organizational, and ideological work, the Party has a decisive effect on the fulfillment of civil defense objectives in time of peace, during the threat of enemy attack, and after weapons of mass destruction have been used by an enemy.

The Party organizations guide the political work of the Party in various staff units, at economic centers, and in civil defense brigades, and control the activities of these units on a daily basis. Party organizations also train the people in the civil defense brigades in rural regions, kolkhozs, and sovkhozs to have high moral qualities in combat and to master military and special techniques.

Soviet organs of government have the principal responsibility in the organization and execution of civil defense. They are given substantial assistance in solving civil defense problems by the various social organizations—the komsomols (young communists), various professional units, the Red Cross, the Red Crescent Society, the All-Union Voluntary Society for the Promotion of the Army, Air Force, and Navy, and others. These organizations support civil defense chiefs and their staffs, mobilize their own members for civil defense activities, organize instruction, assist in accumulating educational material, and propagate knowledge of civil defense.

## Chapter 2

# Organization of Civil Defense

### The Basic Principles of Organizing Civil Defense

Civil defense is organized throughout the Soviet Union on a territorial-industrial basis. It involves all branches of government, as well as all plants, institutions, schools, kolkhozs, and sovkhozs and includes the entire population. Party, government, and administrative and industrial leaders share the responsibility for the execution of the program.

The Soviet civil defense program is under the jurisdiction of the Council of Ministers of the USSR and is led by the civil defense chief of the USSR, who appoints his own staff. The civil defense chief and his staff act in accordance with the resolutions of the Central Committee to the Communist Party and Council of Ministers of the USSR. In the union republics, the civil defense heads are the chairmen of the Councils of Ministers of the republics.

A civil defense staff is created in each republic to plan and carry out civil defense measures. Local civil defense personnel in the corresponding ministries, departments, and control units are organized to create and train special civil defense units in peacetime to

[8] Enterprise: an organization, such as a factory, hospital, school, etc., that normally functions as a unit.

perform rescue and urgent emergency work in wartime. Branch ministers and departments of the USSR in the union republics are responsible for civil defense in the industrial sectors under their jurisdiction.

Chairmen of the corresponding executive committees of the Workers' Councils[9] are designated as chiefs of civil defense for provinces, cities, districts[10] and villages.

The heads of industrial plants, institutions, schools, kolkhozs, and sovkhozs are designated as chiefs of civil defense. Their instructions on civil defense matters are binding for all their subordinates and also for the entire population.

[9] The Workers' Councils or Soviets of Working People's Deputies constitute the Soviet governmental apparatus at each level of government: republic, province, city or county, and village.

[10] Districts: comparable to counties in the United States.

The civil defense chief of a province (territory), city, county, or center has his own staff. The presidents of Party, Komsomol (Young Communist League), professional and other command organizations are members of the guiding civil defense units. Formations, command units, brigades, and groups of different kinds are formed to perform rescue and urgent emergency work at damaged centers and also in areas of natural disasters. These civil defense units consist of Soviet citizens trained to carry out protective measures, rescue work, and urgent emergency work at centres of mass destruction and also in natural-disaster areas.

The formations are created in peacetime. They are provided with transportation, equipment, materials, and stocks of supplies and are given specialized instruction. The civil defense formations are divided into those intended for the industrial sectors and those with other special assignments.

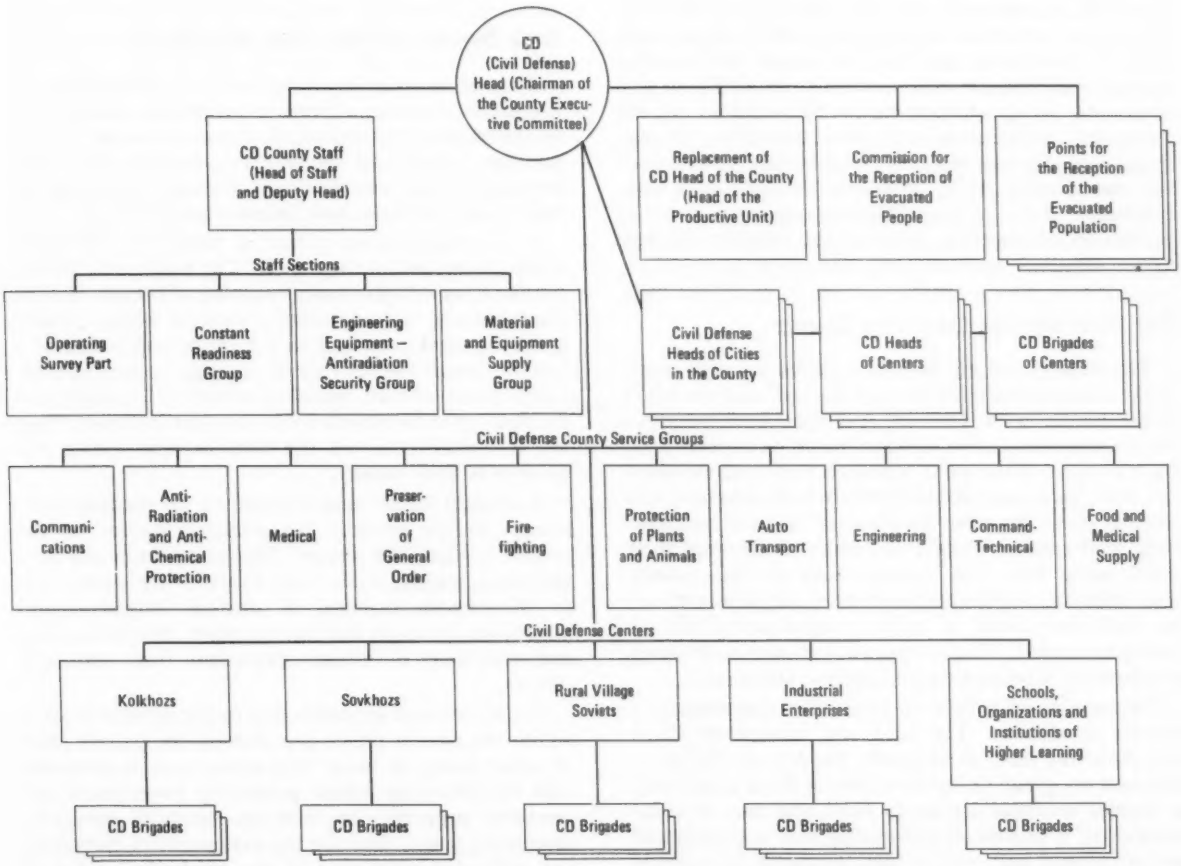



Figure 2. CD Organization Scheme of a Rural County.

## Organization of Civil Defense in Agricultural Districts, Kolkhozs, and Sovkhozs

Civil defense in agricultural areas (Fig. 2) is organized and developed in peacetime to protect the population and agricultural resources from weapons of mass destruction; render aid to damaged cities; receive and relocate evacuated people, organizations, and institutions; resettle and treat wounded people; and maintain production in plants, kolkhozs, and sovkhozs in time of war.

Each agricultural county has its own civil defense chief and his staff. The chief is responsible for the establishment of service personnel and civil defense formations and for their training and readiness to carry out rescue and urgent emergency work in stricken areas. He is also responsible for instructing the population in measures of self-protection from weapons of mass destruction.

The head of agricultural production at a rural economic unit[11] is designated as the deputy civil defense chief. He is responsible for the training and activities of service personnel organized for maintaining agricultural production and for the supply and combat readiness of brigade units created in the kolkhozs and sovkhozs. He supervises the work activities of the evacuated population and is responsible for the protection of people engaged in agricultural production. He also decides on the mode of working in a contaminated area and establishes measures for the protection of animals, plants, food supplies, fodder, agricultural raw materials, and sources of water.

### The Civil Defense Staff of a County

The county civil defense chief guides the daily work of the civil defense units through his staff and the heads of the service units. The staff is created from members of the county executive committee and its departments, the managers of the rural economic unit, and members of other organizations. As a rule, a staff members acts as chief-staff. The other members of the staff maintain their civil defense obligations while performing their usual jobs. The civil defense head of the county establishes the work schedules for the people directly on his staff and those in service organization and at economic centers. This arrangement promotes efficiency in planning and executing civil defense measures.

The number of people on the staff is determined by current conditions. The staff can consist of 12-16 members: the head of the staff, his deputy, the operating-survey group (a head and two or three assistants), a combat readiness group (a head and two or three assistants), a technical engineering and anti-radiation group (a head and one or two assistants), a material and equipment supply group (a head and one or two assistants). If the district executive committee is located in a nearby city, a combined staff and combined service groups for the district and city are created and are responsible to the district civil defense chief.

The principal tasks of a county staff include: developing and executing a county civil defense plan; assuring constant combat readiness of civil defense formations for protecting the population and agricultural production and for rendering aid to disabled cities; warning the population through civil defense signals; maintaining constant control by means of service units and brigades; providing for continuous surveying; developing and carrying out measures to protect the population and agricultural centers from nuclear, chemical, and biological weapons; organizing the combat readiness of people in the service units and formations; and establishing civil defense operating centers in the territories of the district.

### Civil Defense Service Units of a County

To execute civil defense measures, to prepare formations, and to assure effective management during work in damaged (contaminated) centers, county service units are created by resolution of the executive committee of the county Workers' Council in accordance with local conditions and the presence of a base.

A communications group is based on the communications unit of the county. The workers of a communications unit give timely warning of the threat of an enemy attack to responsible people in village soviets, kolkhozs, sovkhozs, and to the entire population of a county; assure the delivery of messages; establish communications with all operating centers of a county; and see that communications are in constant readiness. They are responsible for all the civil defense forces and services in their county.

A medical service unit is based on the medical institutions in the county, the principal doctor of the county heading the service. This unit carries out prophylactic, anti-epidemic, and hygienic measures; sees to the special training of medical brigades; and establishes locations for the reception, hospitalization, and treatment of victims evacuated from damaged centers.

The service unit for preserving public order is created within the county police department, the county chief of police acting as head. This service unit is entrusted with the following duties: protecting government and common property, as well as personal property, preventing panic, assuring the movement of transport, and enforcing obedience of the established rules of conduct by the population. The service unit cooperates in evacuating and sheltering the population in accordance with the civil defense signals. It controls admission to damaged centers and enforces quarantine measures in centers of bacterial contamination.

[11] Rural economic unit: a kolkhoz or sovkhoz. (An urban economic unit is a factory, while and urban center or urban enterprise could be a factory, schooli, housing project, office, etc.).

The firefighting unit is organized within the fire departments, the district fire chiefs acting as heads. The duties of this service unit include: training a firefighting brigade, establishing fire prevention measures, and organizing the construction of water reservoirs in territories of kolkhozs, sovkhozs, and rural villages. If fires occur, the service unit attempts to localize them and put them out.

The service unit for food and material supply is created within the county procurement and supply office, the presiding officer acting as head. This service unit is concerned with problems of protecting food and materials in warehouses and factories from radioactivity and bacterial agents. It provides food and essential articles for the evacuees and the wounded and food for the civil defense brigades of the county.

The service unit for the protection of animals and plants is organized within veterinary and agricultural institutions. This service unit takes measures to protect animals, crops, and fruit and forest trees from weapons of mass destruction. In kolkhozs, sovkhozs, and factories handling agricultural products, this service unit also protects sources of water supply, grain reserves, fodder, and other agricultural products. The service unit for the protection of animals and plants ensures the quality and wholesomeness of meat products and exercises control over water sources and food reserves in kolkhozs and sovkhozs. Along with the medical service unit and the food and material supply service, the animal and plant service unit determines the order of using contaminated products.

With the approval of the regional (provincial) head of civil defense, service units in addition to those mentioned can also be created in a county as the need arises: communal equipment within countrywide organizations or within a combination of communal enterprises and public service organizations; an engineering service unit based on construction organizations; a motor pool within the auto centers, road departments and other similar organizations; material-equipment supply; power, and others.

If a service unit is based on a number of institutions, then one of the leaders is designated as the head of the service unit, and the remainder are designated as deputies. The administration of county service units is determined by the regulations, instructions, and orders of supervisory service units or by the chief of economic units with particular characteristics of the counties taken into account.

Depending on the presence of personnel and equipment in the organizations in which the county service units are established, it is possible to create command units, formations, groups, brigades, and specially designated cells, such as medical and engineering units, units for keeping public order, communications units, communal-technical units, auto transport units, and units for the protection of animals and plants. In addition, it will be possible to use for civil defense purposes already established county departments for communications and health, and also institutions and factories for material and technical supply and for trade and general feeding. Management for sick bays, sorting-evacuation hospitals, main and auxiliary hospitals, first aid stations, and epidemic-preventing brigades are created from county prophylactic and medical institutions and from similar units from the evacuated cities.

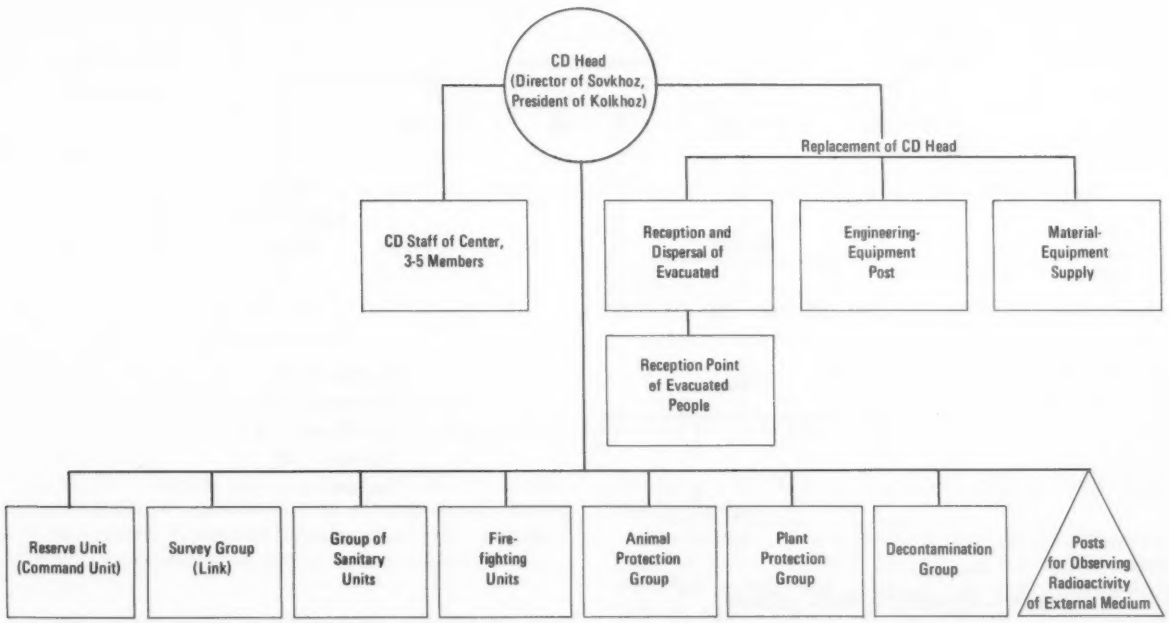



**Figure 3. CD Scheme of Organization of a Kolkhoz or Sovkhoz.**

The veterinary-animal husbandry and agronomic institutions will supply personnel to provide protective measures for animals and plants.

Civil defense responsibilities in a county center are executed through a command post which is supplied with communications, transportation, and personal means of protection. The command post includes the leaders of the brigades, staff members, the evacuation commission, and leaders of support groups.

The heads of civil defense in the kolkhozs (Fig. 3) are their chairmen or directors. They are entrusted with the following responsibilities: creating, supplying, and

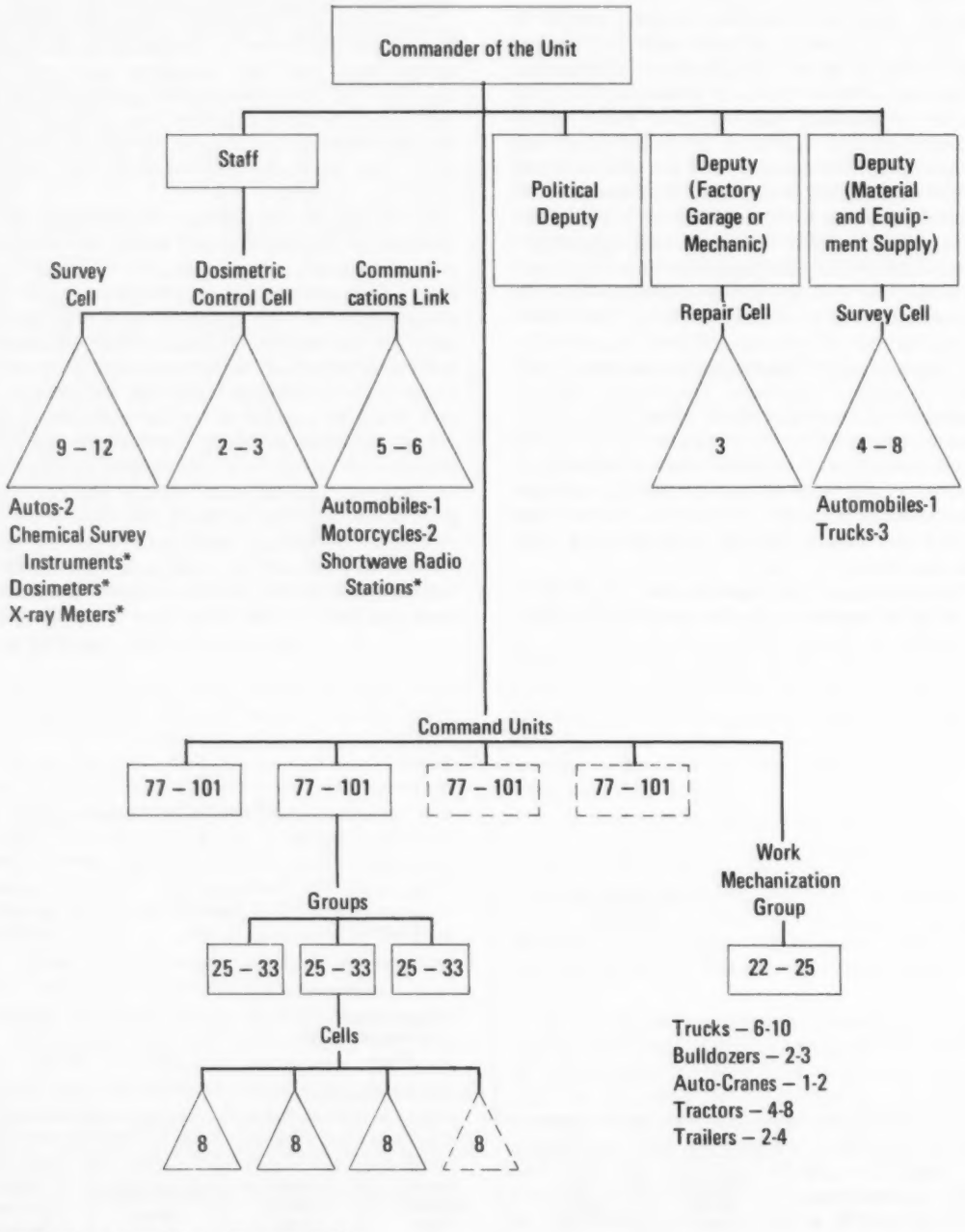



Figure 4. Organizational Scheme of a Reserve Unit (for Rural Areas).

preparing the formations and maintaining them in a state of combat readiness; organizing instruction for the population in protective measures against weapons of mass destruction; accumulating and storing special stocks and equipment for personal protection for the civil defense formations and the population; giving timely warning to people in authority, civil defense formations, and the general population of the threat of enemy attack; executing measures for the protection of the population; organizing disease-preventive, epidemic-preventive, epizootic[12]-preventive, and fire-preventive measures; receiving and relocating the population and the institutions evacuated from the cities; preparing quarters for sick people; assembling formations and organizing their movement to damaged economic centers; executing measures to protect animals, plants, food reserves, fodder, and sources of water from radioactive, chemical, and bacterial contamination; inspecting crops, water reservoirs, forests, pastures, and other agricultural areas to detect contamination at an early stage; and also providing leadership in decontamination work.

Staffs of three to four people, who are expected to continue to work at their usual jobs, are created to assure continuity in the training of brigade units and in civil defense planning for kolkhozs and sovkhozs.

The civil defense staff of a kolkhoz or sovkhoz may consist of the chief of staff, an assistant for the operations and reconnaissance activity, an assistant for the reception and relocation of the evacuated population, and an assistant for the protection of animals and plants.

### Civil Defense Brigade Units of a Rural County

In the kolkhozs, sovkhozs, factories, cities, and towns of a county, the following brigade units are created: rescue units (command units), survey groups, observation posts for monitoring the radioactivity of the surrounding area, communications groups, sanitary units, firefighting units, command units for the preservation of the public order, decontamination units, and units for the protection of animals and agricultural plants.

First aid units, mobile epidemic-fighting units, formations for specialized medical aid, and also medical service installations (for management of sick bays, sorting-evacuation hospitals, main and auxiliary hospitals) are created within county public health departments and medical institutions.

New brigades are recruited and trained along organizational lines (in existing brigades, kolkhozs, and sovkhozs).

Personnel rosters and organizational charts of the formations are prepared by the staff of the operating center in accordance with model organizational schemes, depending on the demands made on operating centers for recruitment and supply. After consultation with the staff of the county, the personnel rosters and charts are approved by the civil defense heads of the operating centers.

The rescue unit (Fig. 4)—This unit consists of two to four rescue command units and is the main civil defense formation of an operating center. The rescue unit is designed to search out wounded people; extricate them from ruins, destroyed shelters, and damaged buildings;

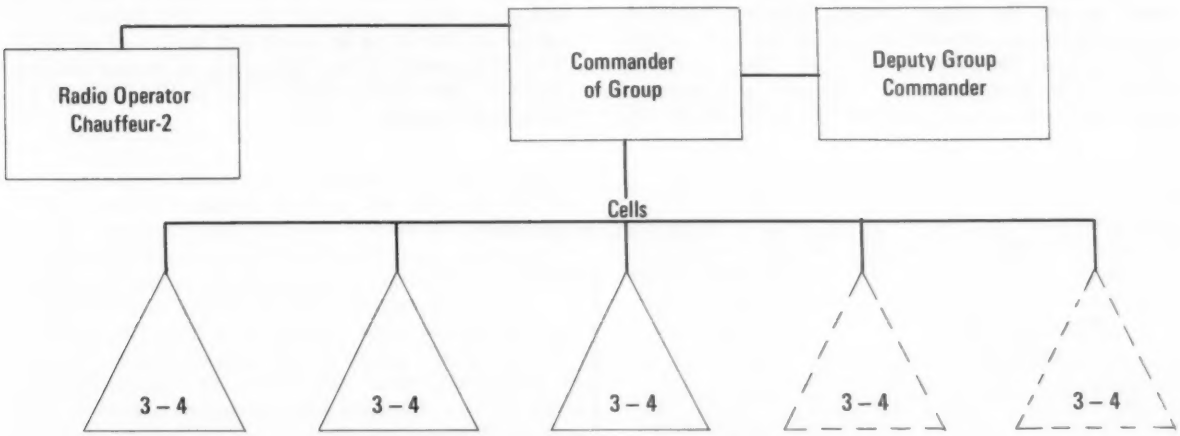



Figure 5. Organizational Scheme of a Survey Group.

In large kolkhozs and sovkhozs, which have the required skills, a number of civil defense service units can be created. Command posts which are supplied with communications are set up to control defense.

administer first aid to them; and remove them from stricken areas.

The rescue unit can perform one of the following tasks in a working shift of eight to ten hours: carry 600-1200 victims from a damaged zone to a distance of 250-350 meters [285-383 yards]; extract 128-240 victims from ruins and damaged buildings and carry them to a

[12] Epizootic: of, relating to, or being a disease that affects many animals of one kind at the same time.

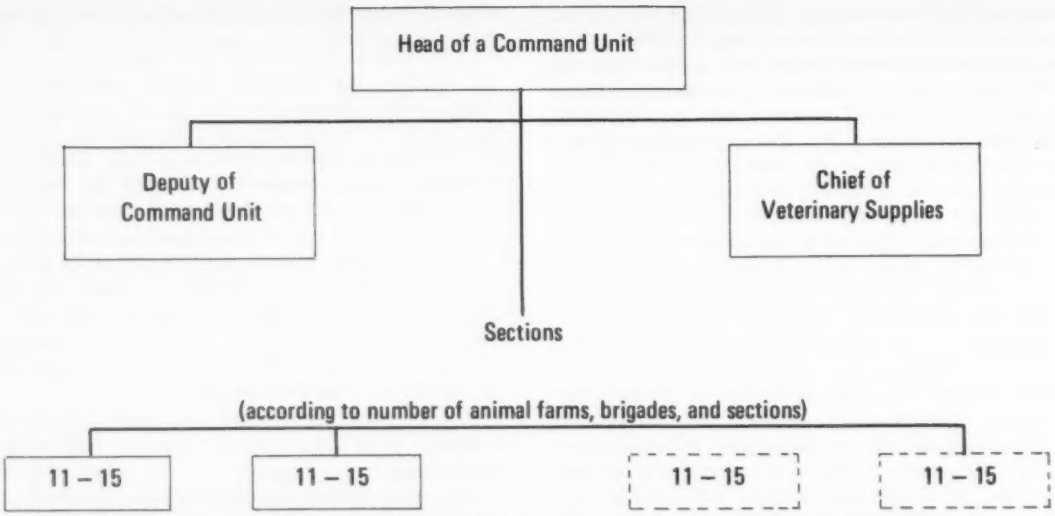



Figure 6. Organization Scheme of Command Unit for Protecting the Animals of a Kolkhoz or Sovkhoz.

distance of 250-350 meters [285-383 yards]; dig out and open up 60-100 damaged slit-trench shelters or dugouts; dig out and open up 18-36 shelters and cellars. In order to perform this work, the brigade is ordinarily supplied with engineering and agricultural equipment and reinforced by special brigades.

Survey Group (Fig. 5).—This unit consists of three to five sub-units. Its main responsibilities are to determine the boundaries of the damaged area, the character and magnitude of destruction, the radiation level, and the type of poisonous substances and bacterial agents. The reconnaissance brigades determine the locations and sizes of fires and the state of ruined and damaged buildings and shelters. They designate march routes suitable for the movement of equipment and transport, collect data on the location of the damage, and perform other tasks. The survey group can also be involved in assessing the contamination of people, equipment, stocks of goods, food supplies, fodder, and water.

The Command Unit for the Protection of Animals (Fig. 6).—This unit consists of two to four sections and recruits its workers from farms engaged in animal husbandry. This command undertakes measures to protect animals, fodder, water sources, and animal products and renders veterinary aid to wounded animals. In a working day it can accomplish one of the following tasks: inoculate up to 1200 animals, give veterinary treatment to about 600 head, seal off 2000-4000cubic meters [2620-5240 cu yd] of animal shelters, disinfect 5000-10,000 cubic meters [6550-13,100 cu yd] of animal housing.

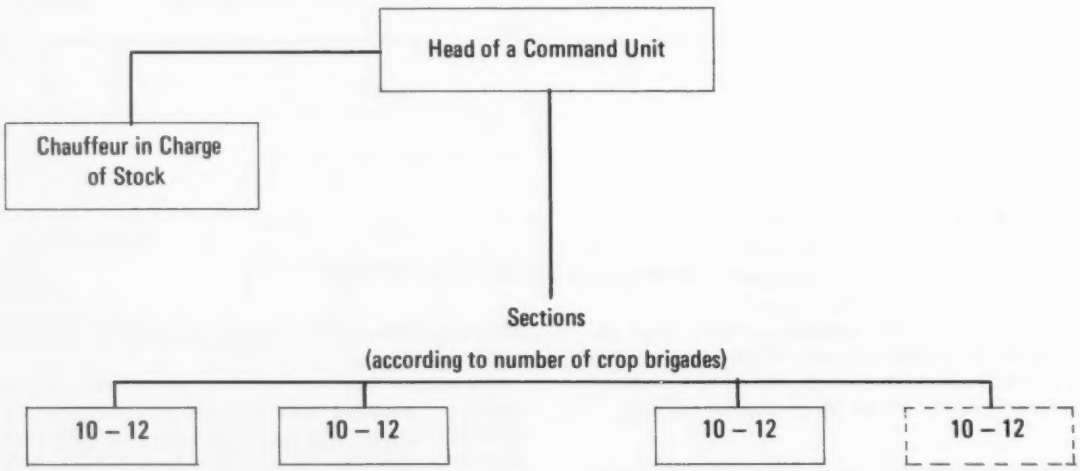



Figure 7. Organizational Scheme of a Command Unit for Protecting Plants of a Kolkhoz or Sovkhoz.

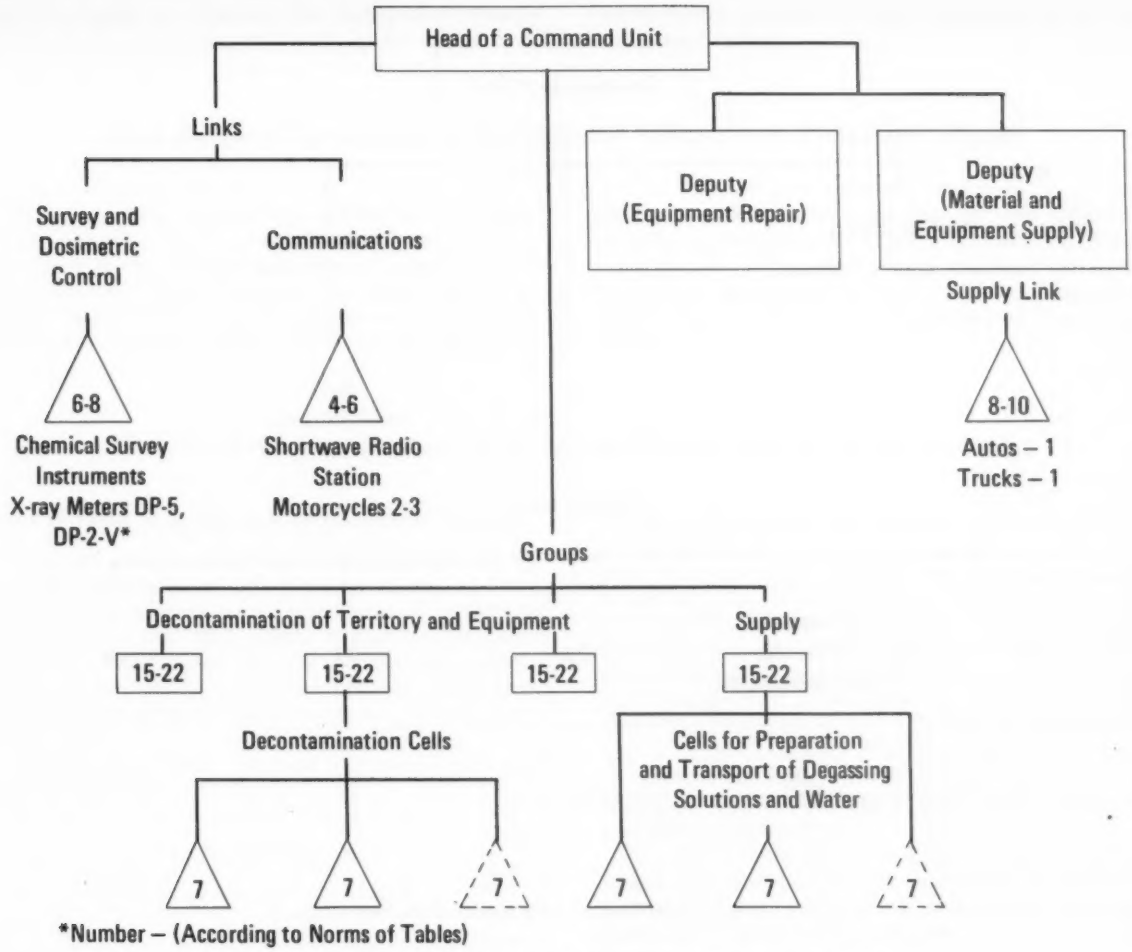



Figure 8. Organizational Scheme of Decontamination Command Unit.

Command Unit for the Protection of Plants (Fig. 7).—This unit consists of three to four sections and recruits workers from plant or nursery brigades. This command unit is established to carry out measures for the protection of plants, seeds, fodder, and agricultural products from agents of mass destruction.

In a working day of eight to twelve hours, this unit can accomplish one of the following tasks: seal off a warehouse of 1500-2500 cubic meters [1970-3280 cu yd]; treat with poisonous pesticides up to 140 hectares [346 acres] of crops and up to 56 hectares [138 acres] of garden, disinfect from insects and bugs an installation having 10,000 cubic meters [13,100 cu yd].

The Decontamination Command Unit (Fig. 8).—This unit consists of two to four groups and is intended to decontaminate land, equipment, and buildings. In one working shift of eight to ten hours, this unit can de-gas 350,000-600,000 square meters [420,000-720,000 sq yd] of land area, or 80,000-120,000 square meters [96,000-144,000 sq yd] of building area.

The Sanitary Brigade (Fig. 9).—This unit consists of four or five sanitary sub-units and is established to render first aid to victims in a center of mass destruction. In one working day the personnel of this unit can render first aid to 2200-2700 victims. In a center of destruction, this unit works along with the civil defense rescue units.

The sanitary sub-units consists of five cells which are formed within the kolkhozs, sovkhozs, and schools. These units are organized to render aid to victims in centers of destruction. In a working day one unit can give help to 500-600 victims.

The fire prevention command unit in a kolkhoz or sovkhoz consists of four sections and is established within the voluntary fire group and also within the regular firefighting unit of the economic unit. The number of sections in a command unit may be reduced if equipment is lacking. The purpose of this command unit is preventing fires (in a kolkhoz or sovkhoz), sur-

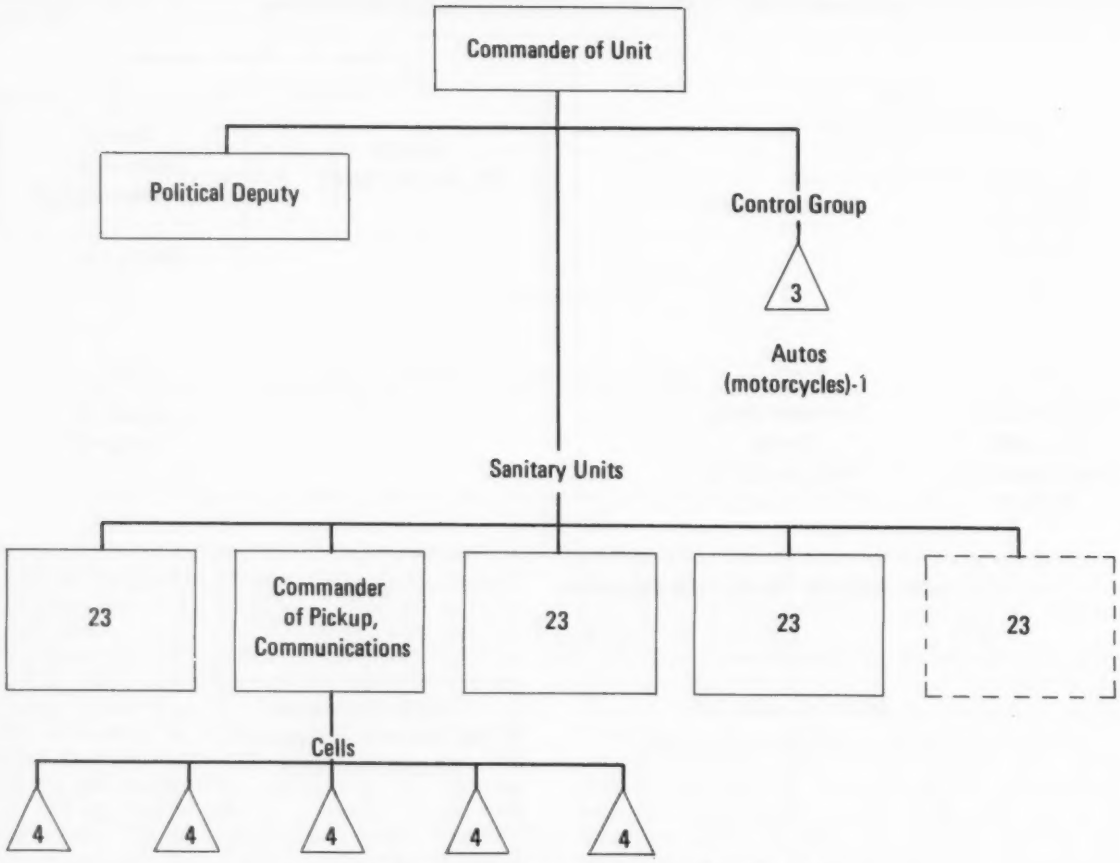



Figure 9. Organizational Scheme of a Section of Sanitary Units.

veying fires, extinguishing fires, and rescuing people from burning buildings and installations.

Posts for monitoring the radioactivity of the surrounding area (Fig. 10) are created in kolkhozs and sovkhozs to assess the radioactive, chemical, and bacteriological situation, to detect the beginning of local fallout, and to apprise the civil defense staff of the situation.

The civil defense staff is responsible for providing all civil defense formations with personal means of protection, means of communications, radiation and chemical monitoring instruments, shelter equipment, and a variety of medicines. Materials that are issued are paid for by the local economic unit.

The use of emergency stocks by civil defense brigades in time of peace to meet economic needs is forbidden. However, up to 10% of the current stock can be used for exercises by the brigade personnel.

The civil defense heads and staffs of kolkhozs and sovkhozs, when making personnel rosters and tables, are allowed, depending on the particulars of production, type of activity, number of people in the brigade, and amount of stock, to adjust the organizational structure of the brigade to conform to the requirements of the county civil defense staff.

The commanders of the formation are in charge and are responsible for the constant combat readiness and training of those under them in the spirit of Soviet patriotism and also for maintaining the required stock of supplies, equipment, transport, and means of defense. The brigade commanders should make sure that assigned tasks are fulfilled in a complex combat situation under conditions of nuclear, chemical, and bacteriological attack. If necessary, they should make decisions independently without expecting orders from superior authorities.

The brigade commanders should know where their subordinates are, what they are doing, and what they require, and they should accomplish their mission with the available forces and material.

The corresponding staffs of a province (region), along with the heads of the civil defense units, determine the number of brigades to be created in a rural county. In so doing, they are governed by what forces and mate-

rials are needed to eliminate the effects of an enemy attack in minimum time and also by the number of reserve forces needed for around-the-clock operations in damaged centers.

## Civil Defense Formations in Agricultural Schools and Technical Schools

In higher and intermediate agricultural schools, formations are created to resolve civil defense problems pertaining to the interests and areas of competence of these schools. These brigades are following types: rescue units; sanitary brigades and sanitary posts, which are based on the medical units of the schools; emergency units and squads for servicing shelters; and command units for preserving public order. In addition, special commands for the protection of animals and plants are created in agricultural schools. All the formations recruit their members and replacements from these schools.

## Civil Defense Organization of an Urban District and an Urban Center

### Civil Defense Organization of an Urban District

In urban districts, civil defense is organized by the executive committee of the Workers' Councils, which widely involve communal organizations and the general population in this work. These executive committees are responsible for carrying out all measures, assuring constant readiness of civil defense forces and equipment, and furnishing leadership in rescue and urgent emergency work.

Civil Defense Staff.—The staff is created by the civil defense heads of the county.

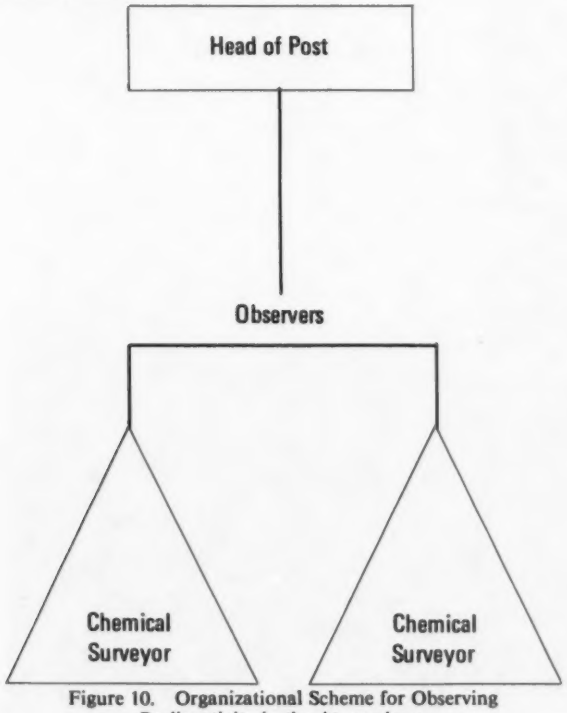



Figure 10. Organizational Scheme for Observing Radioactivity in the Atmosphere.

The staffs organize the general instruction of the population in protective measures against weapons of mass destruction and maintain the constant readiness of the brigades and service units. A key responsibility of the staffs is the development of a civil defense plan. The staffs warn all civil defense units and the population of the threat of enemy attack, provide for the collection and assessment of information on damaged (contaminated) centers, and prepare orders for the implementation of various measures. The staffs direct the activities of subordinate staffs and of service formations and others in performing rescue and urgent emergency work in damaged centers.

The civil defense service units are created to prepare in peacetime those forces and other means which would be needed during enemy attack. In addition, these units perform rescue and other emergency work in damaged centers.

Depending on local conditions, the following service units may be created in an urban district: a medical unit within the district health department, an engineering unit within the maintenance-construction organization, an anti-radiation or anti-chemical protection unit within the plant having a corresponding laboratory, a shelter unit within the district housing office, a fire-fighting unit within the fire department, a unit to maintain order within the local police department, a food unit within the catering service, a retail unit within the local trade office, a personnel and clothing decontamination unit within the communal services and minor repairs office, a unit to decontaminate land and equipment within the district public services office, a supply unit within the local technical supply office, a communications unit within the telephone exchange in the district, a unit for the protection of animals and plants within the veterinary inspection unit.

In addition to the above service units, it is also possible to create other units. The leaders of the service units are the heads of the office, sections, or organizations that are the bases of these units. Special forma-

tions which are created in corresponding organizations, installations, and enterprises can report to the urban service units.

### Civil Defense of an Urban Center

Urban centers are plants, schools, organizations, institutions of learning, housing offices, home servicing units, etc. The directors of the urban centers are their civil defense chiefs. They are responsible for the organization and state of civil defense and for the constant readiness of their centers' manpower and equipment for rescue and urgent emergency work. The heads of large centers have deputies who, as chairmen of the evacuation commissions, are responsible for the dispersal of workers and service personnel and for providing equipment and supplies.

In addition, the civil defense chief of the center appoints a staff, which includes himself, his first deputy for operations and survey work, an assistant in charge of combat readiness and housing, and also any specialists that he considers necessary.

For the preparation and execution of rescue and urgent emergency work at large centers, the following service units are created: communications, firefighting, maintenance of public order, medical, anti-radiation, anti-chemical, shelter, emergency-equipment, material supply, auto transport, and others. Service units are led by persons selected by the head of the center from responsible members of the section or shop. They fulfill their responsibilities in coordination with the overall plan.

In plants, schools, and institutions of higher learning, formations are established according to the production principle, that is, according to the shop, section, working shift, or command. As a rule, the formations perform rescue and urgent emergency work at those centers where they are created.

In addition to rescue units (command units and groups), the following formations are established at industrial plants: survey units, units for monitoring radioactivity of the surrounding area, communication groups, sanitation groups and sanitation posts, emergency-technical command units, firefighting command units, and decontamination units. In addition, depending on the presence of available services, it is possible to organize the following groups: units for chemical protection, stationary shower points, command units for maintaining order, groups for servicing shelters, mobile food units, and water transport units.▲

1

**DISASTER**

**Man made or natural?**

(see page 43)

2

# REGINA E.M.O. RESPONSE TO FLOOD

*by*
*Harry Walker, Mayor of Regina*

*The following is the text of an address delivered by Mayor Walker to the annual Emergency Measures Organization Conference of Mayors and Elected Officials at the Canadian Emergency Measures College, Arnprior, Ont. on May 19, 1971.*

The Regina Emergency Measures Organization had its first operational experience in an emergency under the most trying conditions when flooding hit the city on the eve of the 1971 four-day Easter Holiday, and many key persons in the administration were absent from the city. That the Emergency Measures Organization functioned exceptionally well under such conditions was due to the extensive pre-planning and training carried out in preceding years. It also owed its success to the ready contributions made by all civic departments, agencies and the many volunteers who rallied to calls for help.

The city's ordeal started innocently enough on Thursday evening, the eve of the start of a four-day holiday weekend. Following two days of record high temperatures, snow run-off from farm fields north of the city rushed down an old water course, flooded over a major avenue and flowed on down through newly built up sections of the city, flooding many homes. The Director of the Regina E.M.O. was contacted and

Sandbagging

*Photographs courtesy Regina Leader Post*

he in turn called the city engineer and myself. The city engineer was able to call in enough men from his department to erect a temporary dike along the avenue to hold back the water and permit that which had crossed over to drain down a storm channel. The full services of E.M.O. were not needed at that time.

On Good Friday, April 9th, I was contacted by residents in the Uplands Area in Northeast Regina, when their homes, also built in a low area, were in danger of flooding from high run-off. Tired crews, who had just come off the previous job were again called out to try to channel water around this residential area. All available city pumps plus two large pumpers from the fire department were pressed into service to divert water into the run-off channel to prevent flooding homes. Being new to the E.M.O., I neglected to inform my Director, but a member of the Plains Citizen Band Radio Club, which works in close co-operation with our E.M.O. did so, informing him that help was urgently needed to get people to fill sandbags for diking purposes. My EMO Director immediately ordered a fan out and communications were set up. About 30 citizen band members and Frontiersmen, (E.M.O. auxiliary police) turned up at the city gravel pits to work at sandbagging duties until about midnight.

At 8 a.m. on the morning of Saturday, April 10th, sandbagging was continued by E.M.O. volunteer agencies, mainly members of the Motorboggan Search and Rescue Team, Frontiersmen and members of the Plains C.B. Radio Club. The latter set up a communication trailer which was also used to enroll volunteers not previously enrolled with E.M.O. to ensure their coverage by workmens' compensation in case of accident. Special appeals for volunteers were made over the news media. Hot coffee and sandwiches were provided. By 10:00 a.m. E.M.O. was informed the flooding in this area was under control. However, it was decided that since volunteers were already available, filling of sandbags should continue until noon. This gave us a good reserve of sandbags which were much appreciated 17 hours later.

With advance warnings provided by these two flash floods one would expect to be alert to the real danger areas around a normally placid creek which flows from the southeast to the northwest through the centre of the city. However, this was not the case. As late as 10:00 p.m. on Saturday, April 10th, the last report received from the Provincial Water Resources Board which had been monitoring the water flow and height upstream, assured us that the crest would not exceed the record flow of 1969. At this time our flood defences were more than adequate to meet that level. However, a dike patrol was maintained throughout the night. At 3:00 a.m. the crest was 10 inches below the top of the dikes—at 4:00 a.m. it was lapping over into the low areas along the creek.

An engineer with the Public Works and Engineering Department and the only city engineer still in the city, contacted our Director at 5:30 a.m. asking for E.M.O. assistance. The Plains C.B. Radio Club, the Motorboggan Team and Auxiliary Police were again alerted and returned to sandbagging duties at the sand pits. At 6:00 a.m. the Director of Purchasing opened the city's central stores to issue the necessary supplies. At 7:00 a.m. the Director of E.M.O. informed myself, the Superintendent of City Police and the Provincial E.M.O. Director of the new danger.

The local militia commander in response to request very quickly had all available militia personnel out to seal off streets leading to the flooded areas and to assist in sandbagging. Unfortunately, a large contingent of militia were engaged in an exercise some distance from the city and were not immediately available to help. But for those who turned out too much praise cannot be given to the rapid reaction of the Militia to the emergency and their disciplined contribution.

At 7:30 a.m. Easter Sunday morning all news media were informed of the situation and appeals for volunteers were made continuously over the air. Unfortunately, again, because it was Sunday morning, it was some time before a good response was forthcoming. In the meantime the R.C.M. Police were contacted and 250 recruits from the barracks on the outskirts of the city were placed at our disposal.

By 8:00 a.m. flooding was spreading in three main areas of the city and threatening a fourth. It was immediately realized that the existing E.M.O. headquarters had insufficient space to cope with all demands and following a conference between myself (as Mayor and Head of the E.M.O.) the Director of E.M.O., the Provincial Director of EMO and the Inspector of the City Police, it was decided to implement the E.M.O. plan for an Emergency Operations Centre in the City Police Gymnasium. The E.M.O. Centre had been provided for in emergency planning for some time but had never been physically implement.

The St. John Ambulance, Public Health Department, Welfare, Salvation Army, Purchasing Department, Public Works and Engineering Department, Militia, and others were informed and asked to have representatives report to the Police Gym as soon as possible. Arrangements were also made with the Saskatchewan Telephone Company to have our telephone facilities extended.

By 9:00 a.m. the following operations were set up and manned in the Police Gymnasium:

—Communications—C.B. radio and police and civilian telephones.
—Supplies—Purchasing Department
—Transportation—Transit Department
—Health Department
—Welfare Department and the Salvation Army
—Police Department and E.M.O. Auxiliary Police
—Utilities (hydro, gas, etc.)
—Military
—Fire Department
—Public Works and Engineering Department

On the dikes

—Public Relations

—Personnel

The Regina Armoury was set up as a welfare centre to assist people having to be evacuated. It also operated as a registration centre for evacuees and as a food depot. The City Transit office was utilized as a registration centre for volunteers from where they were transported by city buses to the sandbag filling centre and areas where sandbagging operations were in progress. All regular fares on city buses were suspended for the day to facilitate movement of volunteers from various areas of the city to the registration centre and home again.

At noon a press conference was held to inform the media of the flooding situation. At this time, reports were made by representatives of the Water Resources Board, the Engineer's Department and Public Health Personnel. Press conferences were held twice daily during the emergency.

During the entire operation communications were maintained by means of two-way radio communication between the Public Works and Engineering Department and crews distributing the sandbags and the sand pits. The Citizen Band Radio cars, stationed at all critical areas in the flood area, kept the EOC informed of the need for sandbags, boats and personnel.

At 5:00 p.m. regular force personnel arrived from the Canadian Forces Base Moose Jaw to assist the tiring forces already on the dikes. The new troops continued to work through the night until relieved by a second contingent from the Moose Jaw base early Monday morning.

The E.O.C. was continuously manned from 9:00 a.m. April 11th to noon on April 13th, when the centre was turned over to the Provincial E.M.O. and his staff, who had assembled to plan for and control flooding operations expected shortly in the down river Lumsden Area. A skeleton staff of the Regina E.M.O. remained on duty until Wednesday morning, April 14th.

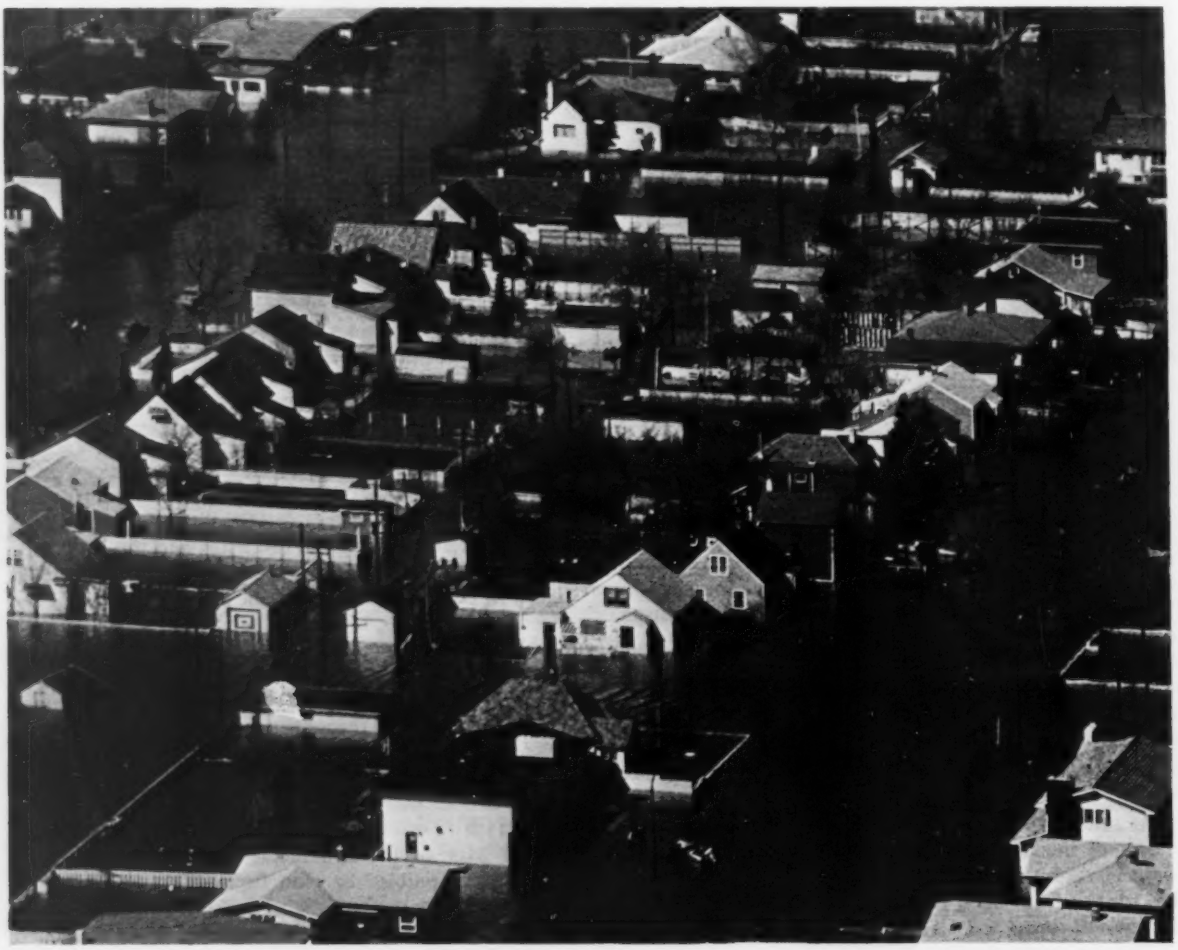
During the nights of April 11th and 12th, the city police, and our own E.M.O. auxiliary police, maintained patrols against looting and to assist in locating missing persons. During the whole emergency there was not one reported case of looting, nor was there any increase in crime.

By Monday morning, the situation appeared to be easing. Two or three minor breaches of the dikes occurred by these were soon filled in. Sandbagging operations were carried on throughout Monday and Monday night. Sandbags were trucked in from Saskatoon and flown in from Winnipeg by Canadian Forces aircraft. In all 160,000 bags were filled and placed in position by voluntary workers.

Monday afternoon, the E.M.O. Director and myself set up a Flood Damage Evaluation and Claims Committee. This committee included the Assistant City Manager, Director of Buildings and Civic Properties and Assistant Director of Development and Public Relations. The provincial government has agreed to pay damages suffered by home owners on a formula yet to be resolved. A relief fund was also started to assist payment of damages to complement the provincial government formula. A three-man committee has been appointed to supervise all payments.

On Tuesday morning, April 13th, the water was beginning to recede slowly, and the crisis was passed. A final press conference was held and as stated earlier the emergency set-up in the police gym was turned over to the Provincial E.M.O.

During the emergency, 377 civic employees were involved. Other agencies were: Militia—140; Regular Forces—188; R.C.M.P. Recruits—250; Plains C.B. Radio Club—63; E.M.O. Auxiliary Police—82; St. John Ambulance—65; Salvation Army—75; Food Caterers—50; Saskatchewan Power—14; Saskatchewan Telephone Company—3; Motor Toboggan Search and Rescue Team (which supplied and manned boats)—10; Welfare—22; Other agencies—16; New Volunteers —379; and many others who were not registered. While man-hours put in are not available for all



Easter in Regina

groups, I think it is interesting to note that the Militia contributed 3,760 man-hours; the regular forces—4,920 man-hours; the R.C.M.P. recruits—2,761 man-hours; the Plains C.B. Radio Club, some of whom worked around the clock at the beginning—1,330 man-hours.

As in every emergency, there are some who stand out in their devotion to duty and many lessons learned. Of the former, I cannot seak too highly of our E.M.O. Director, and his stenographer, who after about 20 hours on duty the first day, had to be ordered home to rest. Both were back in about 6 hours.

A debriefing session of all agencies engaged in the emergency was held following the clean-up. Following are some of the problems encountered:

- *Lack of control* in some areas. At times there were too many indians and not enough chiefs. It was generally conceded that in those areas where the militia or regular forces were operating under officer supervision, efforts were more co-ordinated. It has been suggested that teams of volunteers, with representatives of all agencies involved be set up under an officer or N.C.O. of the militia or regular force, and assigned to a specific area of responsibility. In some areas there was conflict between E.M.O. personnel and Public Works and Engineering employees, as to who should give orders. This will be rectified in new standing operational procedures which are being re-written.
- *Lack of sanitary facilities* for large numbers of volunteers working at sites of operation. This was critical in the sandbag filling site where at times large numbers of women were helping. The solution to this we feel, will be the use of Public Works and Engineering Department cabooses spotted at sites of operation.
- *Lack of suitable places for first aid treatment of injuries.* Recommendations in this instance include the use of cabooses belonging to the Public Works and Engineering Department.
- *Catering services.* Inadequate and lack of proper control. Large numbers of free-loading onlookers often crowded out the workers. It is planned to recruit a representative from the Restaurant Association for the E.M.O. whose duty would be to plan for food services during an emergency including means of worker identification.
- *Traffic Control* to and from the disaster area was difficult due to large numbers of citizens who jammed arteries in an effort to see the flood damage. Being a holiday, it was worse than it would have been on a weekday. The city police are now working

Street scene

on a plan which would keep main arteries leading to a disaster site open at all times.

• *The Emergency Operations Centre functioned reasonably well.* However, our future planning will provide for better grouping of services. The centre will also be separated into two divisions, one dealing with immediate operations and the other with forward planning. It is essential that only personnel engaged in the operation of the centre be permitted to be present. It is particularly important that registration and dispatch of volunteers be located away from the E.O.C.

• *The E.M.O. emergency notification fan out* worked very well. However, some difficulty was experienced when a key department head was absent and all city department heads have now been instructed to prepare a fan out for their departments. These will be printed and distributed by the E.M.O.

• *Difficulty was encountered in radio—communications* through the use of "walkie-talkies" by children. In some areas the C.B. sets were jammed off the air and some consideration has to be given to ways and means of overcoming this problem.

• *Children were found to be problem.* Many proved their worth puting in long hours holding sandbags during filling. However some measure of control must be exercised to keep others away from operations to reduce interference.

In summing up, I wish to reiterate that our E.M.O. planning paid off very handsomely. We made some mistakes. We learned some good lessons.

Through the efforts of our Health Department there was not one recorded case of dysentery, food poisoning or typhoid fever, which often go hand in hand with extensive flooding. There was no loss of life, until after the emergency was over when some youths, who were rafting on the swollen waters, crashed into a bridge. No serious accidents occurred among the volunteers.

There was minor criticism levied at the E.M.O. but this is to be expected from those who were not in possession of all facts. The local E.M.O. proved its worth and its capabilities. Too much emphasis cannot be placed on planning and constant replanning. It keeps the E.M.O. on its toes and pays off in a crisis. ▲

## CIVIL DEFENSE MANUAL AND SHELTERS IN CHINA

In November 1969, a manual for civil defence in the event of an atomic war was distributed to the Chinese people. This manual contains instructions governing the behaviour of the population, as well as appropriate assistance.

Several hundred thousand copies of this manual, entitled "Assistance to the Injured", were printed. It was written by the directors of a military hospital. In writing this book, the authors sought to prepare the population for a war with an adversary treatening to use atomic weapons.

More advanced preparation in national defence is ensured by the showing of films. An official Chinese film that can be seen now on television and in news films in Hong Kong was inspired by the theme of Mao Tse Tung's statement to the effect that the People's Republic must prepare for an atomic war.

The viewer sees how the people construct civil defence buildings and other defence installations in the border region of Hei Long Kiang not far from the Oussouri River. The Chinese commentator points out that all provinces should become independent from one another in economic and alimentary matters, and must be prepared for a possible war.

This film is also part of Peking's present campaign to prepare the people for a defensive war. It is known that civil defence is presently being practised throughout the People's Republic.

The Civil defence activities are as follows:

*Construction of Shelters*—Both urban and rural tunnel networks are being constructed in anticipation of a catastrophe. One of these networks lies under the city of Canton. The construction of other kinds of public shelters also plays an important part. Particular emphasis is given to make-shift shelters.

*Exercises in Case of Attack*—Simulated attacks with the use of Chinese airplanes make these manoeuvres more realistic. They include manoeuvres related to a massive occupation of shelters, and coordination of other defensive measures which must be taken by considerable numbers of the Chinese people. Alert systems have been improved and standardised.

*Training of Civilians in the Use of Arms*—Men, women and children learn to use fire-arms and take part in defence manoeuvres. Imitation arms are widely used. Whenever possible, people are moved about in order to give civilian participation in defensive measures a more realistic character.

*Food Reserves*—Although China suffers from a lack of food products, stocks of rations are now being set up at strategic points, and efforts are being made to create large cereal reserves.

*Evacuation*—Plans have been made to relocate people not required in the cities, in rural areas. These plans have been tried out on a limited scale; they could be put into practice quickly, should a crisis occur or if other reasons justify a preventive war.

The labour necessary to raise civil defence preparations to a higher level is largely provided by a system of night work. Although this practice has given rise to some complaining, it seems that the people are generally enthusiastically devoted to national defence. In fact, certain officials think that this system has a very positive effect on the people since it unites them at an opportune moment.▲

# DECISION INFORMATION DISTRIBUTION SYSTEM

*Excerpt from Secretary Laird's statement to Senate Armed Services Committee, and the Senate Defense Appropriations Committee, February 20, 1970: "One of the major objectives of our present program is to improve current warning systems in order to make possible the maximum use of existing shelter spaces. The main deficiencies of the present combination of Federal, State and local systems are their relatively slow response time and limited population coverage. One means of overcoming these problems would be to establish a number of low frequency radio stations, which would transmit the warning messages received from NORAD through the Office of Civil Defense Warning Center to the Federal, State, and local governmental agencies, local broadcasting stations, and military installations in their respective regions. In order to determine the effectiveness of this approach, we have included $2 million in the FY 1971 Budget to place in operation a prototype low frequency radio station that would cover the central East Coast area. Whether we will subsequently want to proceed further with this program will, of course, be dependent on both the results obtained with the prototype station and the outcome of the National Security Council study of the entire Civil Defense Program."*

A booklet, published in December, 1970, "Highlights of the Decision Information Distribution System," describes a new, nationwide radio communications network proposed by the U.S. Office of Civil Defense to warn and inform citizens and public officials of nuclear attack or major peacetime disasters.

The DIDS system is intended to augment and improve the present system on which the Nation now depends for warning of enemy attack.

A request for $2 million to begin deployment and testing of the new system is included in the Defense Department's budget for Fiscal Year 1971. This would pay for installation of a low-frequency radio station near Edgewood, Maryland. This station, when it is placed in regular operation, would greatly improve emergency warning and information service to about 50 million residents in 10 eastern seaboard States, from North Carolina to Connecticut.

If the Edgewood station proves satisfactory, and if the complete DIDS system is later authorized and funded, the complete system could be in operation by 1977, at a total cost of about $43 million. It would include Edgewood and nine other "distribution stations" scattered from coast to coast, two "control stations" in Arkansas and Colorado, plus other facilities. This would provide coverage for all 48 contiguous States. Special arrangements would be necessary for Hawaii and Alaska.

This Office of Civil Defense estimates that full deployment of the DIDS system, plus a possible later tie-in with home receivers, could save from 10 to 17 million additional lives in case a nuclear attack occurs; and that further expansion and refinement of the system could increase this to as many as 27 million lives.

In many peacetime disasters also, the faster and more informative warning provided by the new system could reduce the loss of life and destruction of property.

The principal advantages of an improved new system would be:

- Faster warning.
- Wider coverage.
- Greater reliability.
- More complete information furnished citizens.
- Capability of eventually including direct warning to the public through television sets.
- Capability of eventually integrating the DIDS system with the Safeguard antimissile system, so that communities where incoming enemy missiles appear to be targeted can be given at least a few minutes additional advance warning.

# Current Warning System

The present attack warning system is a mixture of Federal, State, and local networks.

It is made up of an alerting system and an information system.

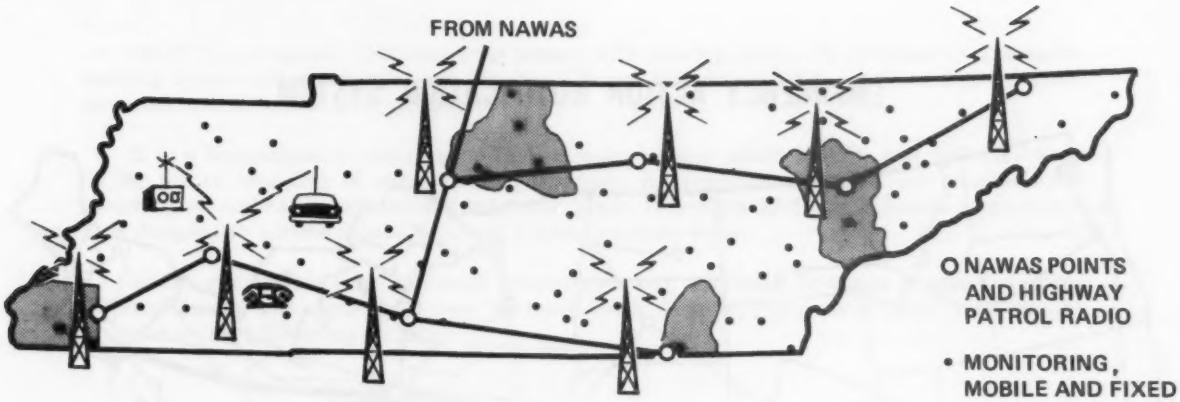
### Alerting System

The Federal portion, NAWAS, (National Warning System) connects three National Warning Centers with approximately 945 full-time State and local warning points. Warning officers at the Warning Centers initiate a voice warning message. State and local personnel at the 945 warning points sound sirens at these locations.

It takes about one minute for the message to reach the warning points. Additional time is required to sound the sirens locally.

NAWAS is a two-way, party-line telephone system. It may be used for natural disasters and other peacetime emergencies, as well as for a nuclear attack.

# STATE AND LOCAL WARNING




**In Tennessee, NAWAS points are located to permit entry into State Highway Patrol radio systems.**

**These systems further disseminate warning to many communities.**

**In some cases, local telephone calls are used to further spread the alert.**

**Each community sounds its own sirens.**

**Typical State response times:** 45% of population receives warning in 5 minutes

50% of population receives warning in 10 minutes

and 75% in 30 minutes

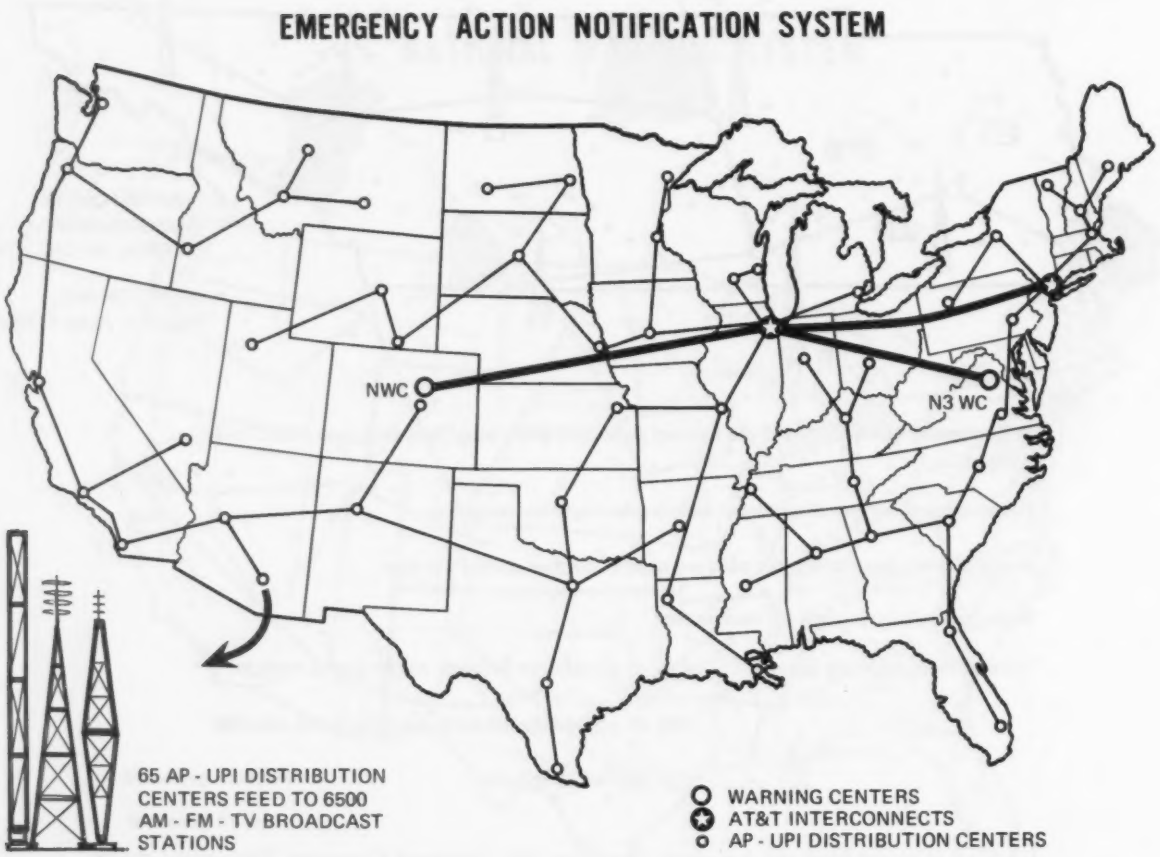
NAWAS is leased from the American Telephone and Telegraph Company. The annual charge for this service was $1,082,512 in FY 1969, and $1,217,342 in FY 1970.

From the 945 Federally-warned points, further dissemination of warning is made through police, forestry or other radio or telephone networks to reach outlying cities and towns. Each State has it own system of intrastate warnings.

Time to alert the public beyond the 945 NAWAS warning points varies from a few minutes to 20 minutes or longer.

The combination of NAWAS and State warning systems provides siren alerting to about 60 percent of the urban population nationwide, under ideal conditions.

# Information System


EMERGENCY ACTION NOTIFICATION SYSTEM
NWC
N3 WC
65 AP - UPI DISTRIBUTION CENTERS FEED TO 6500 AM - FM - TV BROADCAST STATIONS
WARNING CENTERS
AT&T INTERCONNECTS
AP - UPI DISTRIBUTION CENTERS

When the public is alerted by siren system, people normally seek verification of the alert and follow-on information. This is received from the broadcast AM, FM and TV stations.

The Warning Officer who initiates the siren alert over NAWAS from one of the National Warning Centers also initiates a message to the broadcast stations over a separate system, EANS (Emergency Action Notification System). This is a teletypewriter network which gets into radio stations by way of the wire services normally used by the broadcast industry for news.

The broadcast stations, when notified, broadcast a warning message to people who happen to be listening. Normally this varies from a few percent of the population at 3 a.m. to upwards of 50 percent during prime time, although these percentages could be increased considerably by crisis-conditioning of the population.

Some 600 of the nation's 7,000 stations have been provided fallout protection, emergency power, and radio links to local government operating centers.

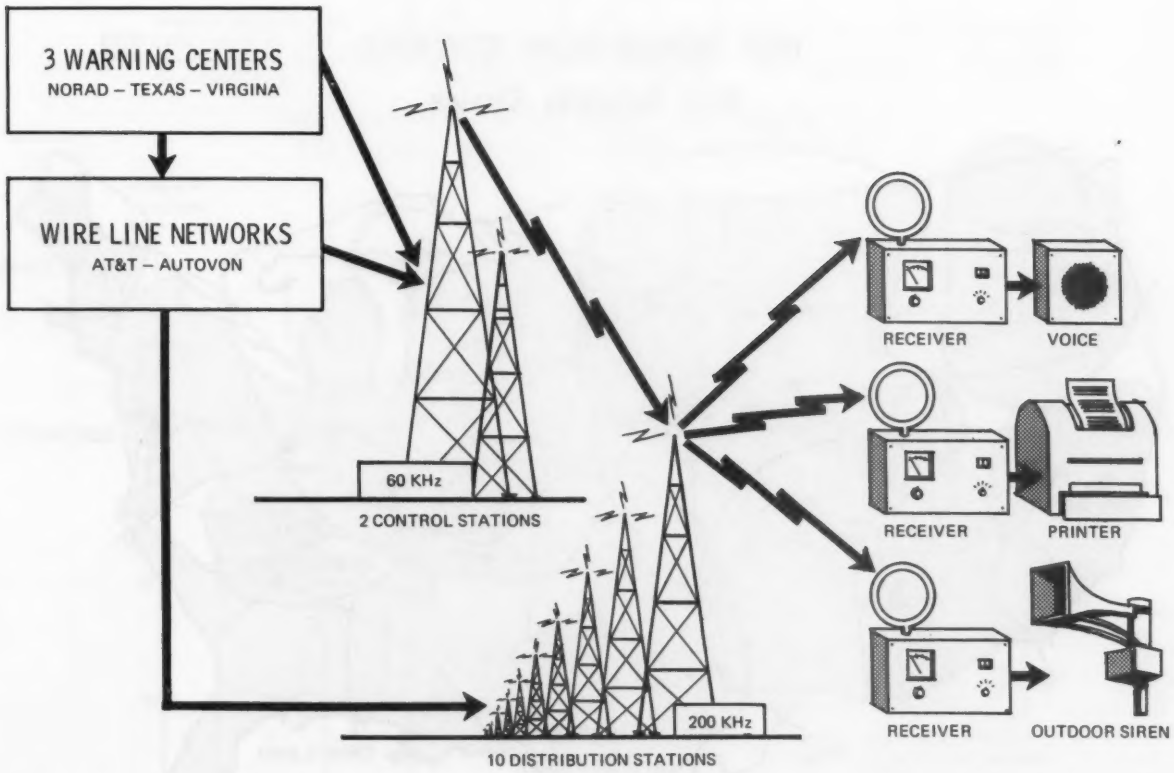
# Decision Information Distribution System (DIDS)

DIDS is a proposed addition to the present CD warning system. It provides an automatic warning system connecting the three Warning Centers with Federal, State and local government terminals and with local siren systems.

It is a low-frequency radio and AT&T wire-line system which initially will activate about 12,000 points consisting of voice-receiving terminals, teletypewriter terminals, and terminals for switching on multi-siren systems and individual sirens. (See pages 22-23 for technical description.) It is designed to survive modest levels of nuclear weapons effects.

DIDS will provide State and local governments with additional coverage of attack warning information and with rapid "hard copy" (printed) terminals at key locations to permit local officials to make effective lifesaving decisions.

## SYSTEM PLAN FOR DIDS



# Dids System Characteristics

The response time of DIDS is 30 seconds over-all. Local receiving terminals begin to receive a warning message within ½ minute after the warning officers at the three Warning Centers activate DIDS. Automated local sirens also begin to sound ½ minute after activation at the Warning Centers.

Field tests conducted in 1966-70 show that the proposed DIDS transmitters provide reliable service to over 96% of the population. (Coverage for Alaska and Hawaii is under study.)

System reliability is very high. 99.9% of all receiving terminals have a 90% or better probability of receiving an understandable message. (See facing map.)

Receiver addressing is "built-in", so that groups of voice receiving terminals are activated selectively. For example, it is possible to communicate essential crisis information directly to selected local governments without sounding sirens or alerting the general public in those communities.

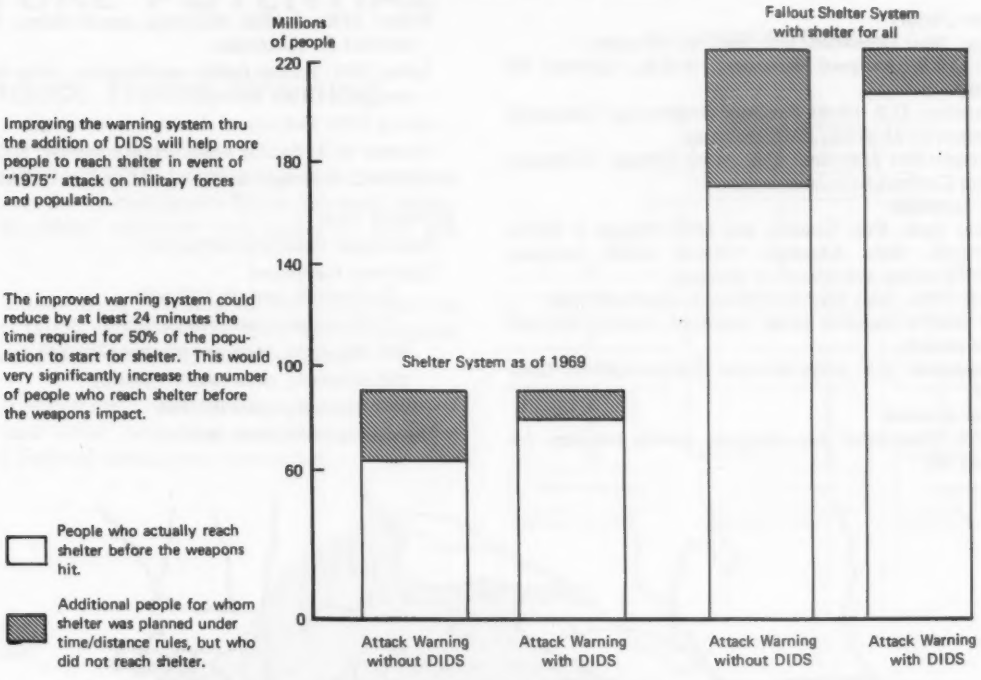
DIDS brings voice and radio-teletype warning messages directly to local governments and to selected radio and TV stations of this broadcast industry, which in turn alert the general public.

All critical elements of the DIDS system are provided backup power and protection from the electromagnetic pulse effects of nuclear weapons.

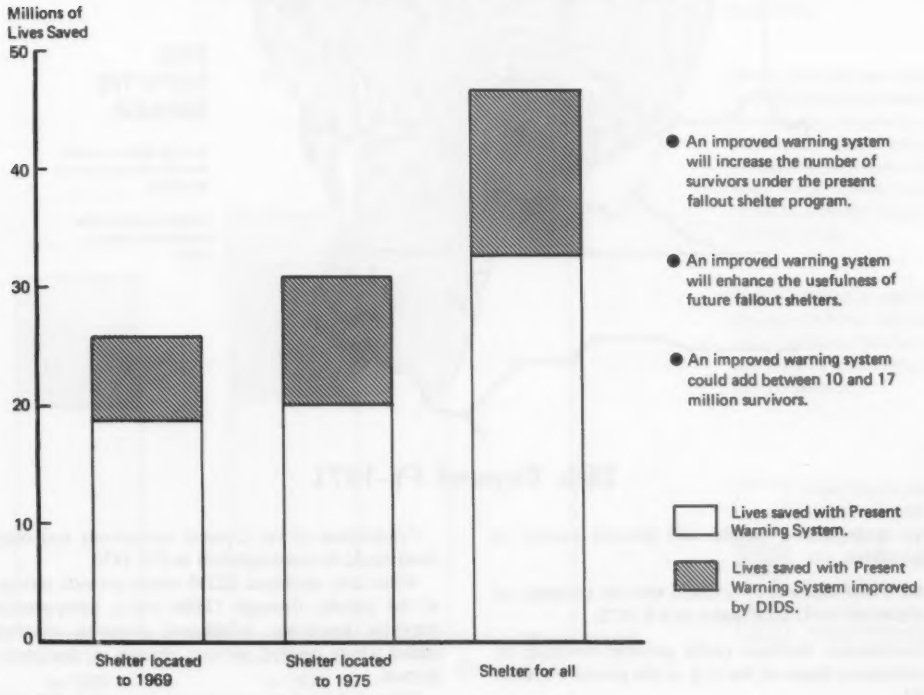
## DIDS TRANSMISSION COVERAGE

### High Reliability Service

## ATTACK WARNING SYSTEM WITHOUT DIDS versus WARNING SYSTEM WITH DIDS
(with DIDS full potential including home receivers)


Millions of people
220
180
140
100
60
0
Fallout Shelter System with shelter for all
Shelter System as of 1969
Improving the warning system thru the addition of DIDS will help more people to reach shelter in event of "1975" attack on military forces and population.
The improved warning system could reduce by at least 24 minutes the time required for 50% of the population to start for shelter. This would very significantly increase the number of people who reach shelter before the weapons impact.
People who actually reach shelter before the weapons hit.
Additional people for whom shelter was planned under time/distance rules, but who did not reach shelter.
Attack Warning without DIDS
Attack Warning with DIDS
Attack Warning without DIDS
Attack Warning with DIDS

## LIVES SAVED WITH FALLOUT SHELTER AND WARNING, IN A "1975" ATTACK ON MILITARY FORCES AND POPULATION


Millions of Lives Saved
50
40
30
20
10
0
Shelter located to 1969
Shelter located to 1975
Shelter for all
● An improved warning system will increase the number of survivors under the present fallout shelter program.
● An improved warning system will enhance the usefulness of future fallout shelters.
● An improved warning system could add between 10 and 17 million survivors.
Lives saved with Present Warning System.
Lives saved with Present Warning System improved by DIDS.

# Dids Prototype Installation (FY-1971)

*Transmitter Facility*

Location: Near Edgewood, Maryland, on 160 acres.

Power: 50 KW; Assigned Frequency: 179 $KH_z$; Antenna: 700 feet tall.

Construction: U.S. Naval Facilities Engineering Command; Hardened to 25-30 psi; EMP protected.

Maintenance and operation: U.S. Army Strategic Communications Command.

*Receiving Terminals*

Location: State, City, County, and OCD Region 2 EOCs; Governors, State Adjutants General, State Agencies; NAWAS points and broadcast stations.

Types: Voice, voice plus teletypewriter, siren activator.

EMP (electro magnetic pulse) protected; battery operated where needed.

Maintenance: U.S. Army Strategy Communications Command.

*Deployment Schedule*

Fall 1970: Transmitter site selection; specific locations for receiver ter

Winter 1970: Publish electronic specifications; invite bids; contract for electronics.

Spring 1971: Publish facility specifications; invite bids, acquire site; contract for facility.

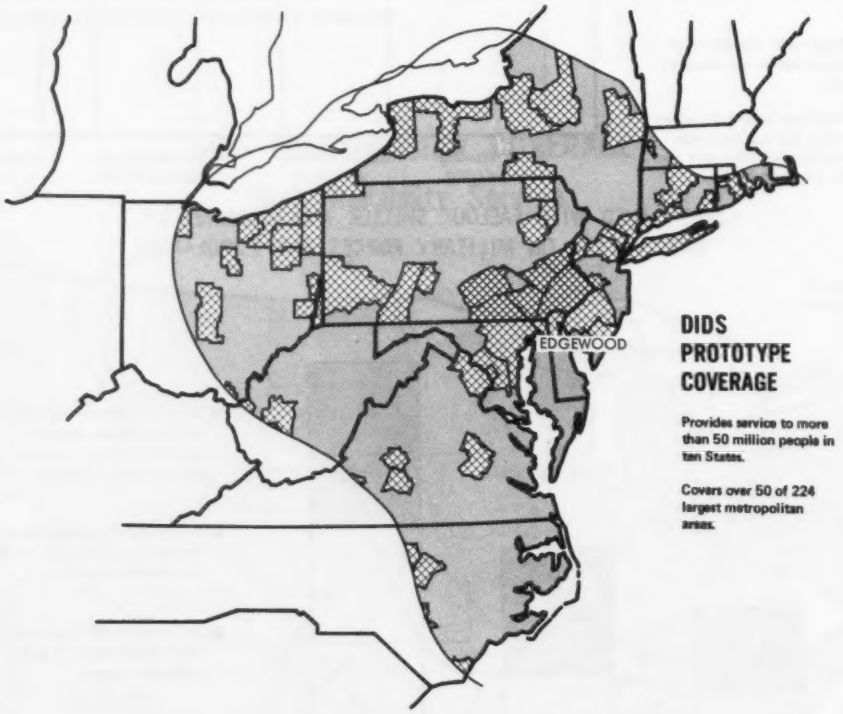
Spring 1972: Delivery of electronics; tests begin.

Summer 1972: Facility construction complete; tests begin.

Fall 1972: Prototype facility operational in 10-State area.

*Estimated Costs*

| | |
|---|---|
| Transmitter Facility Construction | $ 750,000 |
| Electronic Equipment | 1,160,000 |
| (1) Controls, console (250,000) | |
| (1) Transmitter, antenna (560,000) | |
| (50) Receivers, voice and teletype (230,000) | |
| (50) Receivers, siren control (60,000) | |
| (400) Receivers, voice (60,000) | |
| Engineering and Leased Services | 90,000 |
| | $2,000,000 |




# Dids Beyond FY-1971

The prototype transmission facility will provide service to central east coast states.

One additional Distribution facility could provide coverage of the north central part of the United States in FY 1972.

Additional Distribution facilities could provide coverage to the remaining contiguous States of the U.S. in the period FY 1973 through FY 1975.

Completion of the Control subsystems and receiver procurement could be accomplished in FY 1976.

When fully deployed DIDS would provide service to over 96% of the people, through 12,000 voice, teletypewriter, and siren activator terminals. Additional receiving terminals could be added where needed without change in the basic Distribution System.

Estimated total system investment cost is $43 million.

# FUTURE POTENTIAL

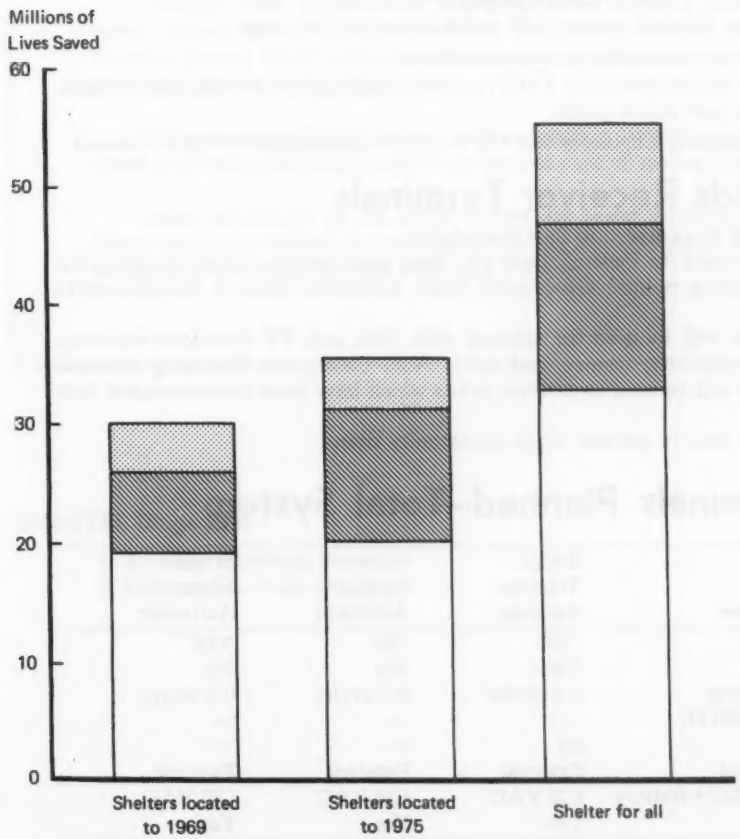
## Indoor Home Warning

Because the basic DIDS transmission and distribution service covers the 48 contiguous States, terminal receivers may be added wherever and whenever they are needed.

Direct indoor home warning to the public may be added once DIDS is operational. OCD has investigated various methods of providing home warning.

Use of civil defense home warning systems in natural disasters and other peacetime emergencies is under study by a Federal interagency committee.

IMPACT WARNING




Lives saved with fallout shelter attack warning and impact warning 1975 attack on military forces and population.

When anti-ballistic missile systems and high speed automatic warning systems are operational they may be interconnected to provide special warning to target cities. Studies show major fatality reduction is possible. Cost of interconnection is under study.

Distribution of Impact Warning through DIDS to largest cities would increase the number of survivors by an additional 3 - 10 million people.

Lives Saved with Present Warning System

Lives saved with Present Warning System improved by DIDS.

Lives Saved by Impact Warning

# D I D S TECHNICAL DESCRIPTION

## Dids Control and Distribution Facilities

*Two Radio Control Facilities*

Location: Near Ault, Colorado and in northwest Arkansas.
Transmitter frequency: 61.15 $KH_z$; Transmitter power: 200 KW;
Antenna: 1260 ft. guyed tower; Ground System: 120 radial lines over 640 acres.
Transmitter fully automatic with emergency power generators.
Building: 15,200 sq. ft.; 25-30 psi overpressure; EMP protected; life support for emergency maintenance; earth mounded, half below grade.
Construction by US Army Corps of Engineers and US Naval Facilities Engineering Command.

*Wire line Control Facilties*

Leased services utilizing a combination of AT&T, AUTOVON, and private lines.
Circuit interconnects three warning centers, two Control transmitters and ten Distribution transmitters.

*Ten Radio Distribution Facilities*

Preliminary Locations:

| | |
|---|---|
| Gray, Maine | Carthage, Texas |
| Edgewood, Md. | Alcova, Wyo. |
| Morristown, Tenn. | Selma, Cal. |
| Chiefland, Fla. | Winslow, Ariz. |
| Mazomanie, Wis. | Walulla, Wash. |

Transmitter Frequencies: 167, 179, and 191 $KH_z$; Transmitter power: 50 KW.
Antenna: 700 ft. guyed tower; Ground system: 120 radial lines over 160 acres.
Transmitter fully automatic with emergency power generators.
Building: 3,500 sq. ft.: 25-30 psi overpressure; EMP protected; life support for emergency maintenance; earth mounded, half below grade.
Construction by US Army Corps of Engineers and US Naval Facilities Engineering Command.

## Dids Receiver Terminals

Radio receiving devices will be provided in four basic types:

1. Voice receivers will be used for Federal, State and local government emergency operating centers; NAWAS warning points; Governors; State Adjutants General Headquarters; State agencies.
2. Radioteletype receivers will be used for selected AM, FM, and TV broadcast stations; Federal, State, State area, city, county, and Army Area Emergency Operating Centers.
3. Siren system terminals will be used to activate sirens which have been interconnected into local systems.
4. Siren terminals will be used to activate single community sirens.

## Dids Terminals Planned–Total System

| | Voice Receiver | Radio Teletype Receiver | Siren System Activator | Single Siren Activator |
|---|---|---|---|---|
| Number needed | 6700 | 1500 | 300 | 5000 |
| Selective Address | Yes | Yes | No | No |
| Sensitivity | 0.5 mv/m | 0.5 mv/m | 0.5 mv/m | 0.5 mv/m |
| Frequency response | 100-3000 $H_z$ | — | — | — |
| Words per minute | — | 60 | — | — |
| Antenna | External | External | External | External |
| Power supply | 120 VAC+Battery | 120 VAC | 120 VAC | 120 VAC |
| EMP protected | Yes | Yes | Yes | Yes |

## NEWS RELEASE

*Washington, July 16, 1971*—U.S. Civil Defense Director John E. Davis today approved a contract for start of work on a new federal radio network to give faster, more informative warning of both nuclear attack and major peacetime disasters. The contract covers the first, prototype unit of Office of Civil Defense's (OCD) proposed "Decision Information Distribution System" (DIDS). Eleven similar units are planned, subject to authorization and funding.

DIDS is a warning system which will position receivers in law enforcement offices, fire houses and selected state and local government agencies which, in turn, will relay the warning to citizens.

Ten prospective contractors were solicited and two proposals were received. The contract in the amount of $2,720,012, has been awarded to the Westinghouse Electric Corp., Systems Development Division, Baltimore, Maryland.

Work under this first contract, to be completed by July 1972, calls for (1) construction of a 50,000-watt low-frequency radio transmitter at Edgewood Arsenal, Maryland, and (2) installation of 500 special receivers in eight eastern States and the District of Columbia. The states are Virginia, West Virginia, Maryland, Delaware, Pennsylvania, New Jersey, New York and Connecticut.

Another 1,600 receivers are scheduled to be installed next summer in these and two other states, Rhode Island and Ohio, with a total of 65 million residents. People who live in communities having DIDS receivers will benefit through better warning of severe storms and other peacetime disasters, as well as attack.

"The complete DIDS system, plus a possible later tie-in with TV sets in American homes, could save many additional millions of lives in case of nuclear attack," Director Davis said.

Main advantages of the DIDS system are faster warning, wider coverage, greater reliability, direct automatic control of community warning sirens, and the capability of giving direct and more complete information through radio and TV sets.

**DISASTER (Page 26):**

1. Atomic — Hiroshima, Japan
2. Earthquake — Fukui City, Japan

*If undelivered return to:*

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